Access in a global rattan production network

a case study of rattan originating from Central Sulawesi, Indonesia and upgraded for sale in international markets

Roderick Douglas Myers

A thesis submitted for the degree of Doctor of Philosophy to the
University of East Anglia School of International Development

September 2015

Word Count: 98,878

© This copy of the thesis has been supplied on condition that anyone who consults it is understood to recognise that its copyright rests with the author and that use of any information derived there from must be in accordance with current UK Copyright Law. In addition, any quotation or extract must include full attribution.

This document is formatted for duplex printing and binding.

Abstract

Forests and forest users are increasingly engaged in global scale markets that connect different stages of commodity production and retail. This thesis adopts a Global Production Network framing in order to investigate the case of rattan cane and furniture. I examine the ways in which actors benefit from rattan (a non-timber forest product) and elucidate power dynamics that explain how some actors are better positioned to benefit from rattan than others. My conceptual framework combines the literature on access with global production networks. I explore access starting in the forests of Sulawesi, Indonesia, moving to processing in larger centres in Sulawesi and Java, and ending in retail shops in the UK. This approach enables an analysis of rich mixed-method empirical data.

My main findings centre around Indonesia's rattan export ban, which benefited only elites and served to support the overall decline of global rattan furniture markets. Further, I elucidate the influence that access at one phase of production has on another and highlight understandings of access within the context of the greater production system. While most actors engage in activities and trading relations that serve access to markets, non-actors enable these actions, but for different benefits, such as strengthened authority. Lastly, I link aspects of materiality to access, demonstrating how the biogeophysical features of rattan shape actors' ability to benefit from natural resource products and how markets shape material features of rattan.

These findings are significant to the greater bodies of knowledge around the power dynamics of production networks and show the specific mechanisms by which elites capture benefits of rattan. They demonstrate the importance of appreciating the complexity of production networks, which in this case was ill-considered by policy makers and even industry elites themselves.

Key Words: access, global production network, power dynamics, Indonesia, rattan, forest

Table of contents

List of figures

List of images

List of tables

List of appendecies

List of abbreviations

AMKRI	Translated: "Indonesian Association of Wood and Rattan Furniture" Commonly: "Indonesia Furniture Association" (Asosiasi Mebel Kerajinan dan Rotan Indonesia)
APHI	Association of Indonesian Forest Concessionaires (Asosiasi Pengusaha Hutan Indonesia)
APRI	Indonesian Rattan Business Owners Association (Asosiasi Pengusaha Rotan Indonesia)
ASMINDO	Indonesian Furniture Industry and Handicraft Association (Asosiasi Industri Permebelan & Kerajinan Indonesia)
BPS	Central Statistics Agency (Badan Pusat Statistik)
ETPIK	Registered Forestry Industry Exporter (Eksportir Terdaftar Industri Kehutanan)
GCC	Global commodity chain
GPN	Global production network
GVC	Global value chain
HS	The Harmonized Commodity Description and Coding System
IFFINA	International Furniture & Craft Fair Indonesia
IFEX	Indonesia International Furniture Expo
GCC	Global commodity chain
GPN	Global production network
GVC	Global value chain
EU	European Union
LLNP	Lore Lindu National Park
MoEF	Ministry of Environment and Forestry (post-2015)
MoF	Ministry of Forestry (pre-2015)
NGO	Non-governmental organisation
NTFP	Non-timber forest product
PSDH	Payment of the Provision of Forest Products Pembayaran Provisi Sumber Daya Hutan
PT	Limited Company (Similar to 'ltd' or 'pty') Perseroan Terbatas
SUCOFINDO	Superintending Company of Indonesia
SNA	Social network analysis
TNI	Indonesian military (Tentara Nasional Indonesia)
VCA	Value chain analysis
VOC	United East India Company (Vereenigde Oost-Indische Compagnie)

Glossary of terms

cane	lengths of rattan not processed into core or peel
core	heat of rattan (not including peel) machined into strips for webbing
fitrit	see 'core'
household	although the Indonesia statutory definition of a household is a family bound by a head of household, who is/was either married or living apart from her/his parents, I use household to explain the people living in the same house or family compound, which can include multiple heads of households and their families.
ojek	motorcycle taxi or transportation service
peel	rattan outer layer machined into strips used for webbing and binding

Currencies

USD	United States Dollar (stated in unadjusted value unless stated otherwise i.e. 2013USD= adjusted to January 1, 2013 value)
IDR	Indonesian Rupiah (stated in unadjusted value unless stated otherwise i.e. 2013IDR= adjusted to January 1, 2013 value)

Note: For general discussions about prices during the fieldwork period, I use the rough conversion of 1 USD = 10,000 IDR, which was the approximate exchange rate at the time of fieldwork.

Acknowledgements

I started this research with no recent academic experience and after having been moulded into a pattern of results-based livelihood project management thinking after several successive years working with non-profit organisations. I therefore particularly relied on my supervisors, Thomas Sikor and Adrian Martin to guide my transition to become an academic researcher. They did not disappoint. My supervisors were exceptionally supportive and insightful my entire time at UEA. I appreciate their support and assistance to re-format my thinking so that I could produce this research. I am also thankful to other academics who helped work through some of my concepts along the way both at UEA and other institutions at which I undertook specific courses, such as the PhD course on Political Ecology at the University of Copenhagen LIFE and especially to Jesse Ribot for his guidance on my research design. Further, I appreciate the engagement and critiques of Kate Schreckenberg and Manuel Ruiz Pérez, the examiners of this thesis.

I also appreciate the co-operation of a wide range of respondents from the UK to Indonesia and a few places in between. Starting in the village of Utani and moving all the way through the global production network I found countless people willing to not just be interviewed, but to actively engage in supplying information that would become crucial to my research. These actors will remain anonymous as they do throughout this thesis, but they were critical to the development of my study.

At UEA, I appreciate the collegial atmosphere among postgraduate researchers and faculty alike at the School of International Development, so many of whom provided ideas and inputs that made this study take shape and provided critiques of drafts. My research was greatly facilitated by financial support from the Faculty of Social Science, for which I am extremely grateful. Finally, although it is customary to thank family members in the acknowledgements of a thesis, in this case, my wife Nonie Kaban (MBA, UEA) was an active participant in the data collection of this study and sacrificed a year of her career to move from the forests and all along the global production network to support me. She was key in the reciprocity that we could provide the village and to our social acceptance there. She accepted to be a partner

in my challenge to undertake this research on the brutal roads and pouring rain in the forest all the way to the final pressing of ‘Print.’ So to her, I am also incredibly thankful.

1

Introduction

Forests are at the centre of discourse and initiatives tied to global issues such as climate change and habitat conservation. In addition to forest conservation, biodiversity and reducing carbon emissions, many researchers, local communities, policy makers and non-governmental organisations are concerned about people living in and adjacent to forests. People in these communities are among the poorest in the world (Sunderlin et al. 2000) and rely not only on wood products from the forest, but a range of non-timber forest products (NTFPs) for income, food, and medicines. In this thesis, I show how power dynamics among actors affect access[1] in a global rattan production network. I elucidate exchanges among actors from forest to international levels and explore the ability to benefit from rattan and the forest itself. My study is therefore about a wide range of actors engaged with rattan collection, processing, manufacturing, trade and rule-making. These actors are constantly negotiating with one another and making systems that affect themselves, other actors, and the entire network of actors as well as the forest itself. The negotiations and the decisions that various actors make result in the governance structures affecting access and trade.

Governance structures influence the ways in which forest-based communities use and have the ability to benefit from forests and forest products. Governance structures pertain to not only forest management, land tenure and trade policies, but also the ways that forest products are traded and commercialised within the global production network (GPN),[2] which determines the levels of benefits that each actor can derive from engaging in the exploitation and trade of timber and non-timber forest products.

NTFPs were once held up as a beacon of hope for achieving both conservation and community livelihood objectives (eg. Cavendish 2000; Scherr, White & Kaimowitz 2003). Since many NTFPs can be harvested from the forest with little impact on timber resources, they were seen as a way of ensuring that local communities could

1. I introduce what I mean by 'access' in Section 2.2, but until then, Ribot and Peluso's 2003 definition as "the ability to benefit from things" is sufficient.

2. The assemblage of industry and policy-making actors involved in trade. This concept is explored more in Section 2.3.

derive monetary value from forests without deforestation. However, several efforts to achieve both conservation and livelihood objectives through NTFPs failed or resulted in *elite capture* in which elites in society benefited disproportionately to the most marginalised (Dove 1993; Marshall, Newton & Schreckenberg 2003). Some of the reasons for *elite capture* include policy makers' failure to comprehend the power dynamics among actors, including global actors (Yeh 2000), which makes all the more important an enquiry into how the ability to benefit from NTFPs by some actors affects, and is affected by, the ability of other actors to benefit from the same resources (Arnold & Ruiz Pérez 2001; Belcher 2005; Belcher, Ruíz-Pérez & Achdiawan 2005).

I use the case of rattan, a globally traded NTFP, to illustrate how different actors benefit from rattan not only at the forest level, but as it is traded and converted into furniture and sold in the UK and other import markets within the GPN. As rattan is traded and converted, I show how the power dynamics among actors affect the greater trade network. Rattan is both cultivated on farms and harvested from forests, in which case it has the potential to serve forest conservation, local development, and economic development concurrently (Belcher 1998).

I concentrate on rattan harvested from the wild to better understand relationships among a commodified NTFP, forests, and actors benefiting from the NTFP. Indonesia, where much of my research took place, plays an important role in rattan production and rattan furniture manufacturing. In particular, I focus on rattan extracted from within a customary forest that overlaps with a national park, which serves to illustrate some of the different ways conservation and livelihood objectives are framed by different actors. Using primarily semi-structured interviews, complemented with global trade data and survey results, I address how global markets and users of forest resources affect one another and the implications of these interactions on forests.

I contribute to original knowledge in several ways. First, I understand access in relation to the access of different actors at multiple phases of production within the global production network. Access is not only a result of negotiation among actors,

but also of the ability of other groups of actors to benefit from rattan as it is commodified. The ways in which access can be understood in a global production network shed new light on distributive issues of benefits as a natural resource product is traded and transformed to become a finished commercialised product. Second, I highlight the ways in which mechanisms of access (Ribot & Peluso 2003) are applied differently by different actors at different phases of production within the global production network. Third, I focus on the direct and indirect effects of trade restrictions and policies on the ability of various actors to benefit from rattan. These effects result mostly in the direct concentration of benefits among elites, and indirect deduction of the global market for the finished furniture product. Fourth, I show the materiality of rattan to affect the ability to benefit from rattan and establish the context in which structural and relational mechanisms of access are used by actors.

I introduce NTFPs more substantially in Section 1.2. Before that, I elucidate some of the broader debates about forests, protected areas and forest conservation; both globally and specifically in Indonesia. Then, in Section 1.3, I clarify my research aims and objectives followed by the overall structure of this thesis in Section 1.4.

1.1 Forests, protected areas and forest conservation

Land tenure disputes and justifications for conservation or resource exploitation contribute to the contested nature of forests in contemporary forest politics. While the FAO (1998) proposes highly technical definitions of forests that detail the densities of tree cover of particular heights, other authors, such as Agrawal (2005, p.83) propose much simpler definitions with more complex meanings by explaining that a "forest is just what the government says is a forest". Contestations over forests have led Vandergeest and Peluso (2001) to use the term 'political forests' to include the varying power dynamics inherent in the definitions, ownership and management of forestlands.

Overlapping governance structures complicate claims over forests. Some actors consider forests as a common good under the control of the State, and others as a commons to be managed by customary users. Several of these complications and overlapping claims are illustrated in the next two subsections at the global level and within Indonesia specifically. Contextualising the concepts of forests is important for

setting the ground for this thesis because, ultimately, I show that global governance structures of rattan, as a forest-based product, influence the forest and communities that rely on the forest resources long after the product itself has left the forest.

1.1.1 Protected forests and conservation in the global context

Protected areas have become the dominant method of protecting biodiversity as espoused by NGOs, governments and international initiatives such as the Millennium Development Goals (Chape et al. 2005; Lele et al. 2010). Ferraro et al. (2011, p.32) describe protected areas as follows:

> The theory underlying the use of protected areas is simple: legal restrictions prevent anthropogenic disturbance, thus contributing to the maintenance or recovery of ecosystem services. Protected area impacts are diminished by assigning protection to unthreatened areas, by noncompliance with legal restrictions, and by spillovers to unprotected areas (e.g., leakage).

By 2011, 157,897 sites protected 16.26 million km^2 of the earth's surface; a ten-fold increase over the last 50 years (IUCN & UNEP 2012). There has been significant research on the (dis)convergence of environmental conservation and the ability of people to benefit from forest resources. In these discourses, the rights of communities are pitted against hegemonic global perspectives concerning the preservation of natural spaces (Adams & Hutton 2007; Brockington, Duffy & Igoe 2008) resulting in either conservation leading to great costs to people (Borgerhoff Mulder & Coppolillo 2005; Brockington, Duffy & Igoe 2008; Duffy 2010; Ferraro 2002) or people leading to the destruction of forests (Henley 2007; Wilkie et al. 2006). On the one hand, some suggest that the natural capital protected in conservation areas enables adjacent communities to derive benefits from ecosystem services leading to reduced poverty (Turner et al. 2012). Terborgh critiques the state of modern parks (so-called "paper parks") as being too small, understaffed, being overly susceptible to "encroachers" and "squatters" and having "people living within them" (1999, p.59). On the other hand, some argue that local people living in and near the forests bear the expenses of the global benefits of conservation (Adams & Hutton 2007; Brockington, Duffy & Igoe 2008; Duffy 2010) and that the exclusion of local people is not a necessary requirement for conservation (Lele et al. 2010).

Within the context of conservation and protected areas, it is important to understand issues of competing and complementary land uses as well as authorities over forestlands. Competing land uses include timber extraction, mining, agriculture, growth of cities and villages, and so on. National parks, such as Lore Lindu within this study, are controlled by national government in Indonesia as they often are elsewhere. Yet as I show, there are competing claims of authority over these lands, which result in varying notions of legitimacy of controlling powers over the forest.

NTFPs can evoke competing or complementary land use patterns. With some exceptions, and depending on the definitions of land use patterns, agricultural encroachment is a source of competition for land in forest areas, while NTFP extraction often has little effect on forests and protected areas (van der Ploeg et al. 2011). Before delving into NTFPs more substantially, I highlight some specific features of forests in Indonesia.

1.1.2 Indonesian forests

Indonesia is among the most forested countries in the tropics, with only Brazil and Congo having larger total areas of forest (The World Bank Data 2015). About 50 per cent of Indonesia's total land mass is *de facto* forest, comprising 88.5 million hectares (Departmen Kehutanan 2008; FAO 2009). Almost 25 million hectares of land are protected as a national park, nature reserve, protected forest or national monument (Brickford et al. 2008).

An estimated 20 million people on Indonesia's five major islands live in or near these forestlands, many of whom are the "most disadvantaged and vulnerable people in Indonesia" (Sunderlin et al. 2000, p.2). By one estimate, forests are "central to the livelihoods" of 28 per cent of the poorest 36 million Indonesians: 10 million people (Brown 2006, p.xvi), and another states 30 million Indonesians are directly dependent on forests for their livelihoods (Ministry of Forestry in Barber et al. 2002).[3]

3. The estimates on numbers of forest-dependent people globally range greatly, possibly related to lack of consistency of the meaning of 'forest depedency'. Chao (2012) summarises some of the estimates.

The ranges in figures reflect the lack of clarity of what is meant by the term *dependency*, which is why I prefer to discuss forest-adjacent communities, focussing more on geographies than dependencies.

Forests in Indonesia have been the focus of contestations between protected areas and communities since pre-colonial times (Henley 2007; Peluso 1992b) with nature reserves dating back to 684 AD (Mishra 1994). Over successive years of fragmented traditional leadership, Dutch, English, and Japanese colonisation, and post-colonial rule by two major eras of Indonesian governments, a complex system of institutional arrangements is involved in the management of Indonesian forests (McCarthy 2006; Peluso 1992b). Throughout some of these eras, multiple legal and policy systems existed concurrently. The Dutch, for instance, practised legal pluralism in which rural Indonesians were not completely subject to all Dutch laws (Henley & Davidson 2008; Li 2007), however trading, timber harvesting, and accessing forest lands were heavily controlled by the colonial authorities (Peluso 1992b). Laminated over this multiplicity of legal systems is a marked circumvention of the law by local people to obtain access to forest resources (resulting in criminalisation of local communities among the corrupt) along with the inconsistent application of the law (Colchester et al. 2006; Henley & Davidson 2008; McCarthy 2006; Tsing 2005).

While most of the laws remain largely unchanged since colonial times (Peluso 1992b; Purnomo & Anand 2014; Safitri & Moeliono 2010), complexities abound in practice. Definitions of forests among various government departments differ, as do interpretations of national policies (McCarthy 2006). Nearly 30 per cent of Indonesia's forest land has no forest cover (Brown 2006), rendering them political forests only (cf. Peluso & Vandergeest 2001). In part, the absence of trees in forests is due to deforestation within protected forest areas. In 2003, an estimated 18 per cent of protected areas were being illegally logged (Kurniawan 2003 in Jakarta Post as found in Brickford et al. 2008). While not as severe as in the past, logging in protected areas remains a critical issue in Indonesia (Gaveau et al. 2012). Further, different groups of actors have different understandings of forest boundaries. Different levels of government, companies and customary users all lay claim to the

rights to use, and the location of, forestland in different ways. Conflicting mapping and border delineation contribute to deforestation in protected areas and throughout Indonesian forests (Li 2007).

Forest areas have fallen under the control of the central State since colonial times and have therefore been distanced from local and traditional control (McCarthy 2006; Peluso 1992b). Since the 'New Order' under Soeharto in 1998, decentralisation has been struggling to find its place in the Indonesian forest management system (Barr et al. 2006; McCarthy 2001; Myers & Ardiansyah 2014) as it seeks to reconcile customary and scientific forest management principles (Henley & Davidson 2008).

The overarching theory of forest management has been consistent since the Dutch first landed in Indonesia in that it has been dominated by scientific forestry, enforced by all regimes, with the exception of brief occupation of Japan, and to a lesser extent England, in which access by local people to forest resources remained illegal, but sustainable forestry practices were all but ignored, especially for the harvest of teak (Peluso 1992b; Tsing 2005). The central principles of this ideology have consistently included State ownership and control of forests, the prioritisation of services to the greatest good to the greatest number of people, the upholding of the efficacy and efficiency of scientific forestry, and the overall responsibility of the scientific forester for the economic growth of forests (Peluso 1992b).

The turning point in Indonesian forest management was largely in the relationship between State and private enterprise established by the New Order government and private Japanese corporations in the 1970s (Tsing 2005). This pattern of corporate management of a public good through State, domestic and foreign corporations, is maintained in the modern model of forest management and conceptually empties the forest of people (Peluso 1992b; Tsing 2005). In effect, the laws continue to disproportionately favour the interests of large corporations, state-making, and international interests over those of local communities (Colchester et al. 2006; Tsing 2005). Overall, 59 per cent of Indonesia's forest areas (national forest estate - *kawasan hutan*) has been designated for logging and 19 per cent as protected areas

(Kementerian Kehutanan 2011). Combined, these factors have effectively resulted in lack of formal rights to forest lands for the poor (Colchester et al. 2006; Li 2007). Several observers note that these principles tend to oppress vulnerable communities living in and near the forest (cf. Henley & Davidson 2008; McCarthy 2006; Peluso 1992b).

But forests are not only about biodiversity and habitat conservation, timber and commercial resource extraction. Millions of people living in and near forests rely on trees and non timber forest products (NTFPs) to meet their daily needs. In the next section, I introduce the concept of NTFP in greater detail.

1.2 Non-timber forest products (NTFPs)

In the last decade, there was an increasing interest and optimism among conservation academics and conservation practitioners that NTFPs could present a win-win strategy for development and conservation objectives (Ahenkan & Boon 2011). The underlying assumption was that if forests are made more valuable to communities living near them, residents will be more invested in conservation whilst improving their livelihoods (Ahenkan & Boon 2011; Peters, Gentry & Mendelsohn 1989). The neoliberal appeal of addressing environmental and economic objectives at the same time is evident to governments and NGOs alike (Neumann & Hirsch 2000), but not without contestation as I show in Sub-section 2.1.3. The importance of NTFPs is expected to increase in the coming decades as signalled by increasing trends toward consumption of natural foods and medicines in middle class markets and the tendency for forest dependent communities to turn to forest resources in times of need (Shackleton et al. 2011b).

Forest products can be considered in several different ways. The FAO Forestry Department (1999) categorises them into wood (industrial, fuelwood and charcoal; small wood), non-wood (plant and animal and including NTFPs) and forest services. NTFPs have many names and definitions. The terms *non-wood forest products, minor forest products, wild products, forest garden products, secondary forest products,* and *by-products of forests* are just a sample of the myriad lexicon applied

to categorise products other than wood/timber derived from the forest (Ahenkan & Boon 2011). Although there remains no universally accepted definition (Ahenkan & Boon 2011), de Beer and McDermott (1989, p.17) describe NTFPs as follows:

> The term 'Non-Timber Forest Products' (NTFPs) encompasses all biological materials other than timber, which are extracted from forests for human use.

Belcher (2003) analyses the various conceptualisations of NTFPs and highlights some of the political and conceptual contrasts among them. Although the de Beer and McDermott definition is often cited, it is also contested (Shackleton et al. 2011a). It is contrasted with the work that the FAO has done on categorising what it terms *non-wood forest products* (cf. FAO 1999). Debate is generally around products like fuelwood and wood products used for tools, crafts, medicines and so on (Shackleton et al. 2011a), what comprises a forest (Belcher 2003), the nature and scale of production, and ownership of benefits (Ahenkan & Boon 2011). Shackleton et al. (2011a) note that part of the reason for disagreement is that the concepts on which NTFPs are based are also subject to critique. These issues include conceptual quagmires concerning notions of forest, biological products, wood and timber and what makes a product *wild*. While many of the Shackleton et al. (2011a) considerations are important for NTFPs, they are not all defining characteristics. For example, the authors state that, "[m]ost, if not all, of the benefits from the direct or indirect use accrue to local livelihoods and wellbeing" and that the benefits accruing from NTFPs can serve to motivate the conservation of a species or site if certain institutions are in place (Shackleton et al. 2011a, p.16). While these aspects of NTFPs may be preferential for conservation and to ensure more equitable distribution of benefits from forest products, they do not change what an NTFP is. Therefore, although Shackleton et al. (2011a) raise many important points in their carefully considered perspectives on NTFPs, I argue that the simplicity of the de Beer and McDermott (1989) is sufficient here.

1.3 Research aims and objectives

With the contexts of forests and NTFPs in mind, I set out to explore how the global production network of rattan furniture affects the ability of forest and non-forest-based actors to benefit from rattan. I selected a specific case of a village situated on the border of a national park, and having customary claims to forestlands within the park, in order to study how different notions of what a forest is and how its management affects several different types of actors. Different conceptualisations of forest management influence policies that facilitate the ability to benefit from rattan for some and obstruct it for others. I therefore focus on the power dynamics of rattan actors and non-actors, which shape the governance structures that determine who can benefit from this forest product and who cannot. Further, the material nature of rattan influences the extent to which actors are able to benefit from it and the implementation of policies and practices of rattan actors. To understand these issues, I focus on the following research question:

How do global production network actors benefit (or not benefit) from rattan originating in and near Lore Lindu National Park, Indonesia?

In order to address this question, I focus on the following seven subquestions:

1. What actors are involved in the rattan global production network?
2. What relationships exist among actors?
3. How do different actors leverage and negotiate mechanisms to gain, maintain and control access to rattan?
4. How is access to rattan at one phase of production connected to access at another phase?
5. What benefits do actors derive from access to rattan?
6. How do the materiality of rattan and the ability to benefit from rattan affect one another?
7. How does government policy on trade and the national park affect rattan trade?

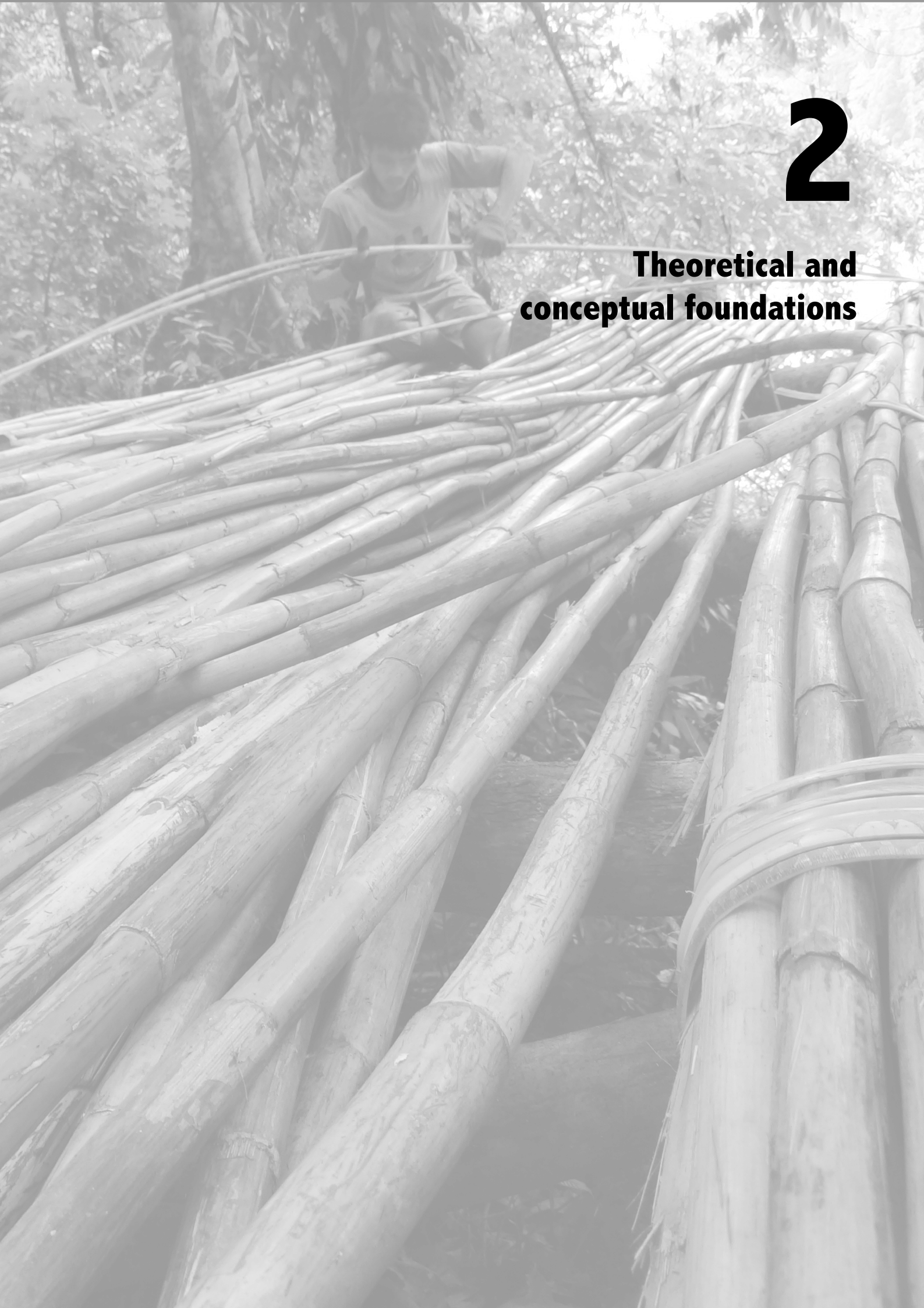
My findings are useful for understanding access at multiple levels within a global production network of a commercialised forest product. They also elucidate power dynamics among actors, with application to theory pertaining to the distribution of benefits and policies related to trade and environmental protection that aim to influence which actors are able to benefit from a resource or industry. Overall, these findings suggest that global production network (GPN) analysis benefits from a more access-centred approach and that access analysis is usefully understood at a broader

level that takes into account the global network of transactions and actors. I show how specific actions by some groups of actors aimed at improving their ability to benefit not only proved to exclude other actors from benefiting from rattan, but also supported the decline of the global sales of rattan products. I also elucidate the effects of materiality on actors' ability to benefit from rattan products and show how the biogeophysical features of rattan shape the access of production network actors.

1.4 Thesis structure

I structure this thesis by first introducing the theoretical and conceptual foundations pertaining to access and global production networks in Chapter 2. I present the critical concepts of access and global production networks in the form of a literature review. In Chapter 3, I introduce my research design including ontological and methodological positions as well as methods I use for data collection and analysis. Chapter 4 serves as a background chapter to introduce the biogeophysical properties of rattan, the rattan global production network, and network actors. The following four chapters comprise the core empirical chapters of the study and focus first on forest collectors, second on the processing of raw rattan materials in Sulawesi, third on Java and furniture manufacturing in Indonesia and fourth on international levels of the rattan global production network. I synthesise the findings from these chapters and make linkages among them in Chapter 9, then make my final conclusions.

Parts of this thesis have been published already. They are listed in Appendix A.



2

Theoretical and conceptual foundations

I integrate several ideas into a single conceptual framework in order to understand power dynamics within the global rattan production network. I do this by "organizing complexity into a coherent story that illuminates the causes of problems" (Senge 1990). This 'story' is about rattan and the social, political, economic and biogeophysical conditions of the ability of various actors at different places within the GPN to benefit from it.

My primary point of enquiry is around access within a GPN. This necessitates a broadly construed socio-politico-economic analysis of both the resource being traded and of the powers that govern activities within the GPN (Coe et al. 2008b). I start this chapter by looking at the state of knowledge of the management and use of non-timber forest products (NTFPs) in the tropics, focussing on relevant NTFP theory in Section 2.1. I then specifically focus on access as a concept in Section 2.2. This discussion enables an understanding of the mechanisms by which powers are activated within the GPN. In Section 2.3, I explore concepts and theories of global production networks, commodity chains and value chains. I explain how these concepts are woven together in my conceptual framework at the end of this chapter on page 49. Within this chapter, I focus on particular generalisations drawn from bodies of empirical literature rather than grand meta-theories of social science.

2.1 NTFP Theories

Socio-politico-economic theories around NTFPs vary considerably and feature several inconsistencies (Belcher 2003). There was a resurgence of interest in conceptualising NTFPs in the 1990s and early 2000s, summarised well by Sills et al. (2011). I centre this discussion on three NTFP theories that I compile from several bodies of work as follows:

1. NTFPs are an important source of wealth for forest-based households.
2. The more valuable NTFPs become, the more likely that the benefits will be captured by elites.
3. The higher the value of an NTFP, the greater the incentive for forest-based communities to protect the forest.

I explore each of these bodies of theory here and how NTFPs, forests and livelihoods are related to one another.

2.1.1 NTFPs and household wealth

NTFP theory suggests that a) NTFPs are important for forest-dependent household income and b) poorer households rely more on NTFPs than wealthier households. NTFPs are often described as safety nets that insulate households against vulnerabilities (Angelsen & Wunder 2003; Arnold & Ruiz Pérez 1998; Neumann & Hirsch 2000; Wunder et al. 2014). They are important for maintaining livelihoods[4] in forest-based communities (Angelsen & Wunder 2003; Cocks et al. 2008; Saha & Sundriyal 2012; Shackleton & Shackleton 2006). Whilst NTFPs are not often the primary source of income for forest-based communities,[5] they play a "strong equalizing effect" on household wealth (Heubach et al. 2011, p.1991). According to theory, the extent to which actors derive income from NTFPs varies considerably depending on a number of factors. One such factor is the wealth of the household or community. Several studies have found that the poorer the household, the greater the reliance on NTFPs (Angelsen & Wunder 2003; Heubach et al. 2011; Kar &

4. I recognise the broader concept of livelihood (Chambers & Conway 1991), but focus here on financial and material aspects. A full discussion on all the capitals considered within the sustainable livelihoods approach would be tangential, and potentially lengthy, although several have similarities with structural and relational mechanisms access discussed later on.

5. NTFP income and importance are notoriously difficult to measure (Wollenberg & Nawir 1998).

Jacobson 2012). This does not necessarily mean that members of wealthier households collect less NTFPs, but they have more diversified income sources or are involved more in trading, both of which have higher profit margins (Heubach et al. 2011; Paumgarten & Shackleton 2009). Another is the access to markets. Hyman (1996) explains that the more remote the resource, the less accessible markets are to forest-based actors. I discuss this in Section 2.2.

2.1.2 Elite capture and social differential of benefits of NTFPs

As with other products, the differential distribution of benefits from NTFPs has proven problematic. First, observers note the tendency for profitable NTFPs to come under the control of elites[6] (Belcher 2005; Dove 1993; Heubach et al. 2011; Neumann & Hirsch 2000; Springate-Baginski & Blaikie 2007; Thoms 2008) and more generally, men (Leach 1994; Shackleton et al. 2011). This means that more benefit is likely to be obtained as the product is processed and transported by key private or state actors (Arnold & Ruiz Pérez 1998; Marshall, Newton & Schreckenberg 2003; Sunderland, Ndoye & Harrison-Sanchez 2011). Benefits are therefore captured by intermediaries rather than by forest-based actors and little value additive activities, such as processing, are done in forest-based communities (Hyman 1996). In this way, NTFPs have as much of an imbalancing effect among phases of production within the GPN as they have an equalising effect among households within a village.

There are several aspects to elite capture[7] of NTFP benefits. First, in research that assessed limits to commercialisation of NTFPs, 79 per cent of NTFP projects surveyed experienced problems with inequitable exertion of market power in the value chain (Newton et al. 2006). This is therefore a problem that is built into the systems that govern the exchange of NTFPs. Second, and compounding the issue of disproportional elite benefit from forest resources, elites are also more able to "afford alternatives to heavily regulated community forest products" or to innovate ways of

6. I use the term 'elite' after Burt (1977) to indicate actors who have relatively high levels of power and influence in the network.

7. As Lund and Saito-Jensen (2013) point out, there are several uses of the term 'elite capture'. I refer to a disproportionate political, social or economic benefit to actors with high levels of power and influence as a result of a specific exchange.

benefiting from NTFPs than the poor (Thoms 2008, p.1453). This means that elites have more options to benefit from NTFPs than the poor do. Third, even populist movements based on Indigenous rights to access forest resources tend to fall under the control of elites (Sangaji 2007). Customary access rights, including governance of the forest commons, do not necessarily protect inequalities from emerging.

While issues of elite capture and unbalanced benefits within market systems may not seem surprising, questions of how these differential benefits are obtained, maintained and controlled have been under-researched and are critical to understanding how actors position themselves to benefit from a resource. Whilst some have suggested that political empowerment must precede NTFP market-based development (eg. Ruiz Pérez & Byron 1999), the substance of this so-called empowerment remains elusive.

In contrast, a 2009 study on gaharu[8] showed that there was no evidence of monopoly or domination of any actor over another.

> No single actor or group of actors is dominating any of the agarwood value chains. The various actors benefit from being able to trade in network with many buyers, and have near-perfect competition. Value is more evenly distributed along the chain and traded at higher prices, in contrast to price-fixing and control by wholesalers (Jensen 2009, p.39).

Jensen established that on average, harvesters of the product received 13 per cent of the final retail value, which is comparable to fruit growers in Kenya despite the high value of gaharu. This finding is consistent with some of the materiality concepts that Sub-section 2.2.3 elucidates; in which I refer to Barham et al. (1994, p.20) who theorise that "[s]ome resources, by their highly dispersed nature, almost inherently thwart efforts to monopolize their extraction." Therefore, the extent to which an NTFP is subject to elite capture may depend on the type of NTFP in question, including its value, market, and biogeophysical properties.

8. Gaharu is a highly valued and rare NTFP, also known as agarwood or oud.

Some observers note 'NTFP' may not be particularly useful as a concept due to the diversity of products that are included in the category (cf. Belcher 2003; Lawrence 2003). The dearth of general NTFP theory (Neumann & Hirsch 2000) may be related to the diversity of so-called NTFPs. Several important distinctions bear greatly on this. First, whether or not an NTFP is commercialised has significant impact on elite capture and susceptibility to subsequent domestication (Homma et al. 1992). "The majority of NTFPs are consumed directly by collectors and their families" (Sunderlin et al. 2010, p.50). High market value NTFPs attract the attention of elites or provide motivation to control market access (Belcher & Schreckenberg 2007; Marshall, Newton & Schreckenberg 2003). NTFPs harvested for consumption are notoriously difficult to value (Wollenberg & Nawir 1998), and according to theories of elite capture, not likely to become controlled by elites.

Second, as Belcher (2003) makes clear, NTFPs are simply diverse among themselves. Different products have different constraining factors that would influence who can benefit from what. Belcher discusses factors of biogeophysical characteristics, methods of extraction and production, scales of production and ownership as elements to consider when understanding who benefits from NTFPs. Diverse NTFPs have diverse processing requirements and markets. Some authors argue that more specialised NTFPs can maximise niche markets for a better profit (cf. Belcher 2005; Ndoye, Ruíz-Pérez & Eyebe 1998; Ruiz Pérez et al. 2004). While some NTFPs require specialisation, others do not. Specialisation could make a significant difference in terms of the distribution of benefits.

Third, the same raw product assumes many forms as it is processed and transported (or *upgraded* as I describe in Sub-section 2.3.1). These forms may have different susceptibilities to elite capture as their material characteristics change. If, as Barham et al. (1994) argue, some resources thwart monopoly due to their dispersed nature, it is also possible that the same resource tends to be monopolised once it is collected and compiled in a specific place. Similarly, as increasingly sophisticated technologies, larger volumes, and better access to markets are required for an NTFP, elites may increasingly assume control over it. Actors assume greater financial risks

when dealing with NTFPs in larger markets (Taylor 1999), which is a disincentive to poor extractors to even attempt to participate in markets where the gains may be higher.

Elite capture is not necessarily a negative feature of the trade network. Elitist hierarchies are sometimes beneficial to developing and sustaining forest-based production networks (Browder 1992; Henley 2007; te Velde et al. 2006). Henley (2007) shows through historical evidence from Indonesia, that elites and the State were able to make the long-term investments in natural resources that enabled sustainable production. He juxtaposes this with the "desperate ecocide" of the poor that he cites from Blaikie and Brookfield (1987, p.240). Henley argues that elites have historically made social contracts with the poor that have been effective in enabling benefits from the forest and ensuring sustainable extraction. The benefits, to be sure, are often differential. Henley (2007, p.286) notes that the "problem with authoritarian solutions to environmental (and economic) problems is that even if they succeed for long periods, they create hidden resentments that ultimately endanger their achievements: hence, in part, the new onslaught on Indonesia's protected areas since 1998".

2.1.3 NTFPs and forest protection

One of the driving forces of the renaissance of NTFP research in the 1990s was the increasing popularity of ecosystem services (Sills et al. 2011). To summarise the theories of a number of authors, which I explore more in a moment, the overall thought is that NTFPs require forests and that by increasing value to NTFPs, forest-based communities will have incentives to protect the forest, preferring NTFP activities to deforestation for agriculture or ranching. Known as the 'rainforest-crunch thesis',[9] this theory assumes that "the problem of tropical deforestation is a product of economic miscalculation: the forest is being cleared because its riches have been overlooked" (Dove 1993, p.17). As Dove shows, the relationships among NTFPs, forests, and markets are more complex than espoused by proponents of this thought.

9. Named after the products marketed by US retailers containing nuts from tropical rain forests (Dove 1993)

The rainforest-crunch thesis[10] proved to be a failure based on proponents' over-simplified understanding of the relationships between markets, market actors, and NTFPs (Sills et al. 2011). As Sheil and Wunder (2002) point out, many other initiatives to use forest products for poverty alleviation measures shared the same weakness.

Nevertheless, the underlying principle that NTFP-based ecosystem services have the potential to incentivise forest-based communities to protect the forest is supported by others (eg. Cavendish 2000; Scherr, White & Kaimowitz 2003). These theorists suggest win-win scenarios in which forest-based communities derive income from sustainably-harvested traditional NTFPs that can compete with land use changes requiring the conversion of forest to agricultural land by communities or through concessions.

Others have questioned the potential of NTFPs for forest protection and ecosystem services (cf. Arnold & Ruiz Pérez 1998; Wunder 2001). They question whether or not NTFPs, themselves, are effective at preserving biodiversity and the health of forests. Arnold and Ruiz Pérez (2001) highlight that not all NTFP extraction is healthy for forests in the first place. Further, there is a fundamental issue around the compatibility of economic and ecological objectives. Arnold and Ruiz Pérez (1998, p.30) suggest that "it is highly unlikely that the economic goals of local users will coincide with the conservation goals of those concerned with preserving biodiversity." By this, they mean that economic sustainability involves sufficient and regular flows of income whilst ecological sustainability involves maintaining biodiversity. They argue that any attempt to maximise income will come at a biodiversity cost, due to market-based pricing mechanisms (established through competitive mechanisms by large area) and biogeophysical aspects of NTFPs, especially considering that abundance varies greatly within small areas.

10. Although this failure curbed enthusiasm of many practitioners and researchers around the potential of NTFPs to alleviate poverty among forest-based communities, it has not stopped new ways of commodifying the forest to arise as evidenced by a wave of integrated conservation and development (ICDP) projects until the early 2000s followed by Payment of Environmental Services (PES) and carbon trading schemes thereafter.

After conducting an extensive review of NTFP literature and projects, Neumann and Hirsch (2000) suggest that attempts to commercialise NTFPs generally have negative ecological results, most commonly overexploitation. Where NTFP projects had neutral ecological impact, they were generally a failure from a market or livelihood perspective (Neumann & Hirsch 2000). Homma et al. (1992) show how increasing values of NTFPs led to overexploitation and eventually to the collapse of not only the NTFP, but also surrounding forest and plantation activities. They also found that the devaluation of NTFPs through product substitutions, and specifically synthetic alternatives, had a similar effect on the forest. In both cases, the value of the NTFP decreased (because of elimination of market availability) to the extent that forest users preferred to engage in activities that deforested or degraded forestlands. The balance between protecting forests and generating sustainable income through NTFPs is therefore a precarious one.

One of the issues of gaining income from NTFPs is opportunity cost. Several studies have shown that attempts to commercialise NTFPs have resulted in less income benefit to communities than alternative income-generating activities (Birch et al. 2010). Even when NTFPs like rubber and rattan become domesticated, plantations struggle to compete with higher value products like palm oil (Belcher et al. 2004). Therefore, one issue is that other activities could be more lucrative than NTFPs within a specific area of land. Another is that alternative land uses could serve to undermine or diminish future abilities to benefit from NTFPs by permanently altering the environments in which they are found. With this thought, I turn the discussion to notions of access and exclusion.

2.2 Access

People's "ability to generate a livelihood or increase their assets depends on their access to productive resources and their ability to control and use resources effectively" (Berry 1989, p.41). I use the word *access* consistently with the work of Ribot and Peluso (2003) in which actors have the ability to benefit from forest resources as a function of *mechanisms of access*. Ribot and Peluso define access as "the ability to benefit from things—including material objects, persons, institutions, and symbols" (p.153). The ability to benefit from something is inherently political and a product of (and productive of) power relations.

Access is most centrally about who has, or doesn't have, the ability to benefit at what points, under what terms, and under whose authority. The concept of access "highlights the role of power, emphasizing that many people gain and maintain access through others who control it" (Larson & Ribot 2007, p.192). Restricted access has the effects of reducing the levels of exchange among actors, redistributing benefits to a few well-positioned actors, and altering overall efficiencies of networks toward an "aggregation of individual interest satisfaction" (Marsden 1983, p.712). These political issues related to power are critical to understand the management of natural resources (Ribot 2009; Sunderland, Ndoye & Harrison-Sanchez 2011).

Ribot and Peluso (2003) describe the processes of controlling, maintaining and gaining access and what they call 'mechanisms of access'. Mechanisms of access are activated in different combinations by different actors, to enable access to natural resources; in the case of this study, rattan. They co-exist to varying extents within a whole that determines access. "These categories are heuristic; none is distinct or complete. Each form of access may enable, conflict with, or complement other access mechanisms and result in complex social patterns of benefit distribution. Where and how these analytic categories fit together depends on the web of access relations in which each is embedded" (Ribot & Peluso 2003, p.173). Therefore, all of these mechanisms may play some role in the extent to which actors are able to benefit from forest resources and related markets. They interact with one another dynamically by actor and positionality to the forest resource. They are reproduced

and transformed with each activation and may be used in different ways among different actors in different situations, and may change according to material conditions.

In the sub-sections to follow, I elaborate the main elements of access, starting with gaining, maintaining and controlling access in Sub-section 2.2.1. I then discuss mechanisms of access in Sub-section 2.2.2. Finally, in Sub-section 2.2.3, I explore an under-represented aspect of access in the literature by looking at how materiality of the 'thing' being accessed affects the ability of actors to benefit from it.

2.2.1 Gaining, maintaining and controlling access

Ribot and Peluso liken access and access control to Marx's relations between capital and labour in that an actor has the ability to benefit from a resource, as a labourer might, but control comes with the ability to make decisions about the access of others. They suggest that "it is in the relation between these two sets of actors that the division of benefits is negotiated" (Ribot & Peluso 2003, p.159).

Gaining access is something that remains elusive not only in Ribot and Peluso's work, but also in other work on access and control such as Sen's ubiquitous entitlement work (Koch 2008; see Sen 1999 as an example). Ribot and Peluso (2003, p.159) say only of gaining access that it is the "general process by which access is established." The question of how actors gain positions of control is largely untouched in both bodies of work. To understand this better, research has to be done that will ask questions around what actors use what mechanisms of access and how to they position themselves to make use of those mechanisms (Koch 2008).

Maintaining access often involves the transfer of benefits from "subordinate actors" to "those who control" the resource (Ribot & Peluso 2003, p.159). This relationship, note Ribot and Peluso, goes "beyond class analysis, since strands of control and maintenance may reside in the same person or be shared among cooperating or competing actors" (Ribot & Peluso 2003, p.159). An actor can control the access of others to a resource, but must maintain her or his own access to that control at the

same time. For this reason, control over access is not considered as a permanent power, but one subject to change over time and under changing conditions (Berry 1993).

Control over access is the ability to determine the access of others (Ribot & Peluso 2003). I look more deeply at access control by looking at the notion of power. Although critiqued as lacking a power dimension (cf. Koch 2008), on a closer reading, power is at the very centre of *A Theory of Access*. Ribot and Peluso (2003, p.154) assert that powers "configure resources access" and frame their mechanisms of access as 'bundles of powers'. These powers are then used to gain, maintain and control access.

Control and power

The centrality of power to access is well recognised (Berry 1989; Hall, Hirsch & Li 2011; Li 1999). Ribot and Peluso's notion of access is closely aligned with Barnesian notions of power as "capacities, potentials or capabilities... to generate action" (Barnes 1988, pp.2-3) and Lukes (2005, p.12) when he says that "[p]ower is a capacity not the exercise of that capacity". In the sense that access is the *ability to*, access can be equated to what is known in the power literature as *power to* (cf. Göhler 2009) and is implemented within mechanisms of access. Mechanisms of access (bundles of power) are mobilised to 'benefit from things', including more power (Poteete & Ribot 2011).

Control is a specific type of power. *Access control* is access to what is known in the power literature as *power over* (Göhler 2009). Lukes (2005) analyses this as a two-dimensional form of power that "embraces coercion, influence, authority, force and manipulation" (p.21). He explains this type of power as that which is used to affect another actor against her or his interest (see also Dahl 1957; Lukes 2005). The distinction between power over and power to has dominated much of the power literature since the 1970s (Göhler 2009). Emerson (1962) theorised that the extent to which Actor A has power over Actor B is proportional to the extent to which Actor B

is dependent on Actor A.[11] The power-dependence model framework has been significant in discussions on power ever since Marsden (1983) and is central to developing exchange network theory (Willer 1992) as discussed further in Sub-section 2.3.2. It has developed into an evolved body of literature that includes power and dependency in exchange networks, which includes the central theory that "actor A's power over actor B in an exchange relation (Ax : By) is a function of B's dependence upon A for x, the resource actor A controls" (Cook & Yamagishi 1992, p.246). The dependence of Actor A on Actor B is a function of "(1) the value of resource x to B and (2) the availability of resource x from alternative sources" (Cook & Yamagishi 1992, p.246). The concept of *value,* discussed later in this section, can be considered as the amount of benefit that an actor perceives s/he will be able to derive from the transaction, or in this case, from the resource x (let x= rattan).

These concepts are critical to the understanding of conceptions of access in exchange networks. Ribot (1998, p.335) asserts that "real markets are highly structured by a whole range of policy and non-policy, legal and extra-legal mechanisms" and therefore positions of power are central to an understanding of access. In, part, the extent to which actors hold power in 'real-markets'[12] is a function of an actor's position in relation to other actors and ability to benefit from alternatives.

Alternatives and position

The extent to which an actor has alternatives is a key element of power and control (Cook & Yamagishi 1992; Cook et al. 1983; Marsden 1983). Lukes (2005) borrows from Elster (1983) in suggesting that power due to lack of alternatives shapes *adaptive preferences* (see also Sen 1999), as opposed to *autonomous wants* in which an actor has control and choices over decisions and non-decisions.

11. Note the similarities with Pfeffer and Salancik (Pfeffer & Salancik 2003 originally published in 1978) regarding resource dependency theory in which firm A's power over firm B is equal to firm B's dependence on firm A's resources.

12. 'Real markets' consider markets in the socio-political contexts. See Bernstein (1996), Sikor and Pham (2005) and Bourdieu (2005) for examples of how real markets (economies) are considered.

> So we may say that human powers are, typically, abilities activated by agents choosing to do so (though the choice may be highly constrained, and alternative paths unlikely to be taken) and also passive powers which the agents may possess irrespective of their wills (Lukes 2005, p.71).

Decision and action alternatives have a great deal to do with power. As Lukes points out, "powers are abilities shaped by agents choosing to do so." These abilities, or 'capabilities' in Sen's work, are shaped by constraints on alternatives. Alternatives for action or inaction are constrained or enabled within social relations with other actors. Actors who have but one course of action are in less of a position of power to those who have many (Markovsky et al. 1988). Further, not all alternatives are equal. I explore this more in Sub-section 2.3.2 pertaining to strong and weak alternatives within a social network, which is in part related to the positionality of the actors.

Alternatives can be created or limited by mechanisms of access. Mechanisms of access can equally well be mechanisms of exclusion. This is to say that exclusion is the "ways in which people are *prevented* from benefiting from things" (Hall et al. 2011, p.7). In this sense, exclusion, being the opposite of access, can be applied in all of the same ways that access can. Rights, markets, knowledge, capital, social identity, technology, labour relations, social relations and authority can, and have, all served to exclude some actors while availing access to others. I explore these exclusions in the empirical chapters of this study. The next sub-section describes these mechanisms of access.

2.2.2 Mechanisms of access

Mechanisms of access[13] are understood in Ribot and Peluso (2003) as rights-based, illicit and structural and relational. Rights-based access is bundled with notions of legitimacy of rights-holders, which are often contested (Lund 2011; Wright 2011). Rights-based access may enable actors to benefit from land tenure security, for example, or claims for minimum wages as a human right. Structural and relational mechanisms of access, however, are other ways in which actors seek access. Table 2-1 highlights the structural and relational mechanisms of access and some key

13. Expanded on from Ghani (1996) in Ribot and Peluso (2003)

perspectives that I draw from literature for this study. In the next and final sub-section, I review an additional consideration of access that is not prevalent in the access literature: the influence of materiality as a governing factor of access.

Table 2-1: Summary of structural and relational mechanisms of access and key perspectives used in this study

Mechanism of Access	Key perspectives for study	Reference
Market	As market values change, so do the actors involved in the production of the resource, often with the result of elites assuming access of the resource.	(Dove 1993; Hall, Hirsch & Li 2011; Seville, Buxton & Vorley 2011; Shackleton, Shackleton & Shanley 2011b; Thoms 2008)
Knowledge	Exposure to 'outside' knowledge proves critical to accessing new markets and alternatives.	(Suryanata 2005, p.265)
Capital	"relations governing access to capital combined with market relations" shapes household wealth differentiation.	(Sikor & Pham 2005, p.422)
Social identity	Social identity is frequently used as a basis for claiming rights to access through authority or in defiance of it.	(Berry 1992; Desmarais 2002; Li 2004, 2007; Lund 2011)
Technology	Technologies can be instrumental to accessing markets, controlling behaviour and controlling information.	(Neumann 2002; Sikor & Pham 2005)
Labour relations	Social differentiation is often fuelled by labour relations in terms of what actors have what kind of labour contracts and access to the benefits of land. Markets can be highly contingent on the availability of labour.	(Sikor & Pham 2005; Suryanata 2005)
Social relations	Social capital is embedded in social structures and facilitates coordination of actors and the development of trust. Patron-client relations in which the patron and client are kin or neighbours, there is more contractual flexibility and weaker enforcement than when such relationship features are weaker.	(Castelfranchi et al. 2009; Lin 1999; Putnam 2000, 2007; Suryanata 2005)
Authority	Actors compete with one another to establish legitimacy using other mechanisms of access to form and re-form their authority.	(Hall et al. 2011; Sikor & Lund 2009; Suryanata 2005)

2.2.3 The influence of materiality on access

Since access is the ability to benefit from things, an access analysis would be incomplete without an analysis of the thing. Material, for the purposes of this discussion, is "the stuff things are made of" (Hudson 2011, p.3). Exploring materiality is important for understanding the social meanings of things and the ways they affect the social (Appadurai 1986). In speaking of production networks and chains, Levy (2008, p.954) writes that,

> [w]hile scholarship on institutional theory and politically contested fields has paid considerable attention to the embeddedness of markets and technologies in social and discursive structures, it has neglected the role of the material realm in structuring the social.

The concept of materiality is, at its simplest, the idea that "things other than humans make a difference in the way social relations unfold" (Bakker & Bridge 2006, pp.17-18). This places the concept of materiality centrally within a political ecology framework as I show shortly with reference to Castree and MacMillan (2001). To understand it, social relations must be analysed alongside physical properties of the natural world, including time requirements of biogeophysical (re)production processes, locational distribution and concentration, scarcity, quality and grade, technology of extraction and refining and value to consumers (Barham et al. 1994; Boyd, Prudham & Schurman 2001). "Any of these basic features can fundamentally affect how the raw material industry will be organized, who will be seeking access or control over scarce reserves, what the benefits will be and how they will be distributed, and what other types of development and ecological issues might arise" (Barham et al. 1994, p.6).

Just as the concept of nature is socially constructed (Bridge 2009; Castree 1995; Castree & MacMillan 2001; Smith 1984), the materiality of natural resources influences society and economy (Escobar 1996) and therefore how actors benefit from it in markets. When Miller (1998, p.3) wrote, "social worlds are as much constituted by materiality as the other way around", he highlighted the duality of nature and society. Marx acknowledges the relationship between labour and the transformation of natural resources in Capital Volume 1 (1867). Peluso (1996) provides an account of how the biogeophysical properties of fruit trees influence property relations in West Kalimantan, Indonesia.

Critiques on ecological perspectives stress that too much focus on so-called *natural* processes negates natural transformations that are products of both social and ecological histories (cf. Leach et al. 1999). "Resource and environmental geography have conceptualized nature in predominantly physical terms: as an assemblage of things independent of (although related to) society, whose properties (responsiveness to technology, geographical location) and social utility are revealed by science"

(Bakker & Bridge 2006, p.8). The authors go on to note that "[r]esearch in these fields has traditionally focused on improving the flow of resources 'from' nature and 'to' society (or minimizing the effects of flows 'from' society 'to' nature)" (Bakker & Bridge 2006, p.8). The purpose of this section is to highlight the essential material force of nature on access (cf. Boyd et al. 2001). This is essentially a debate between environmental determinism and social construction.

Fundamentally, research on natural resource extraction and processing must be multidisciplinary (Barham et al. 1994).[14] To do this, nature must be considered in specific local geographical contexts to avoid over generalisations, which lead to externalisation (Barham et al. 1994). Smith (1984) was responsible for one of the earlier academic attempts to delve deeply into the *production of nature* thesis (Bakker & Bridge 2006). In the first sentence of his first chapter, he attributes uneven capitalist development to the socio-economic production of nature by stating, "the emergence of capitalism is responsible for setting contemporary views and visions of nature" (Smith 1984, p.1). In this, the interactions between nature, culture, economy, society and politics come to the fore. As Coe et al. (2008a, p.271) assert:

> Any approach that goes beyond the merely superficial must be able to incorporate the complex actions and interactions of a variety of institutions and interest groups— economic, political, social, cultural—which operate at multi-scalar levels and territorialities and through dynamic and asymmetrical power relationships to produce specific geographical outcomes: the *material* world in which people struggle to make their lives. At the same time, it has to be recognized that such material economic processes are themselves part of 'nature' as well as of the 'lifeworld', the 'identities, discourses, work cultures and the social and cultural embedding of economic activity'.

Marx considered materiality critical to class struggles. For him, "the proletariat under capitalism was reduced to a mere thing, stripped of their personhood" because they were denied their "material being as people who made themselves through their own labour, in their transformation of nature" (Miller n.d.). Similarly, Castree (1995, p.15) critiques that, "knowledge of worldly, 'natural' objects is *always political*...

14. Defined as, "crossing disciplinary boundaries to incorporate the complex social and natural processes at work" (Barham et al. 1994, p.7).

[and] 'nature' is rarely, if ever, an innocent category." Peluso (1992b), Dove (1993), Watts (1987) and Neumann (2002) all give accounts of how power is intrinsically linked with the materiality of specific products and landscapes.

Materiality involves both the natural and the social, but the relationship between them is understood in different ways. Although Marxists insist on crisis and dialectic, which some understand as the duality of nature and society (Doel 2006), others argue that nature and society are the same thing. Braun (2006, p.193) believes that "nature and society are not separate or opposed realms, but internal relations within a larger totality". He ontologically flattens the duality of society and nature to be analysed as a single indistinguishable, world (see also Freudenburg et al. 1995; Latour 1999, 2005; Law 1999). Although several perspectives call for the elimination of the distinction between society and nature, there are several ways in which the distinction is made. Actor-network-theory calls for the agency of not only humans, but also of all things. Proponents argue that the concept of agency, in this case, must change to include any object that evokes an action of another actor (Latour 2005). Freudenburg, Frickel and Gramling (1995) call for a perspective in which the dualism of nature and society dissolve and that they be recognised as "coproduced through the reciprocal and symmetric interplay of the social and the physical" (Goldman & Schurman 2000, p.575).

Castree and MacMillan (2001) suggest a third way to bridge the environmental determinism and social construction debates. Their approach is consistent with political ecology (Neumann 2005) and the one that I take in this research. They suggest an appreciation of the differences between the agency of natural and social forces, considering them both important. They are critical of analysing these forces in an overly binary way (see also Tsing 2013; Whatmore 2006). "The formidable task of new political ecology", say Goldman and Schurman (2000, p.568), "has been to articulate the natural as constitutive of the social, and vice versa, unpacking these relations for a better understanding of the political, ecological, and cultural".

To build on this discussion about materiality and nature, and ultimately their effect on the ability of actors to benefit from natural resources, I break the concept down further by looking specifically at scarcity and abundance, which affect the value of a commodity. From there, I explore what materiality means for understanding access.

Scarcity, abundance and value

Following Castree and MacMillan (2001), materiality has a social side. Scarcity and abundance are relative to social demand. Relative scarcity is a multidimensional characteristic of materiality that includes aspects of absolute supply (abundance), variations in grades of raw materials, market control and the availability of alternative comparable products in the market (Barham et al. 1994). While some forms of scarcity are primarily concerned with biological and ecological characteristics of materiality, these characteristics, as already discussed, are affected by, and affect, social processes. Species become rare because their habitat is small in proportion of the total habitat available, conditions for regeneration have changed unfavourably to the species, or the species has recently immigrated from other populations (Hubbell & Foster 1986). Clearly, human intervention can have an impact on any of these factors and could include unsustainable extraction, fires, and so on. Just as with any commodity, as scarcity increases there is a tendency for the value of the product to increase (Brock 1968; Cialdini 2009). "The factor of scarcity has to be related to the significance of the sense for differences; the factor of abundance to the significance of habituation" (Simmel 1907, p.70). By emphasising the importance of perception, Simmel shows the psychological effects that scarcity and abundance have on value.

Commodity literature provides another perspective to the biological causes of scarcity by describing causes for scarcity as: limits on supply; costs of acquisition, storage and processing; restrictions on possession; and delays in provision (Brock 1968). These features are related to socio-economic scarcity that have the same effect as scarcity of the raw material itself (Barham et al. 1994).

Abundance and scarcity may not always be about the material itself, but about the material in the context of its competing commodities. This is to say that the value of a commodity is held in contrast with the comparative value of similar materials that

could have similar functions. A natural resource-based view to commodities suggests that first, firms will maintain a competitive advantage (ie be able to benefit) from a commodity as long as the commodity is rare and valuable; and second, that a commodity will hold its value on the condition that alternative products are scarce or inefficient to produce (Barney 1991; Hart 1995; Newbert 2008). This implies that there are several external factors to the value of a natural resource, which actors have to manage in order to continue to be able to benefit from it.

Further, policies affect value, scarcity and abundance (Bridge & Wood 2010). Such policies may or may not be directly intended to address the relative availability of a product on the market. Part of the narrative of this study centres on a rattan ban implemented in Indonesia. Akerlof (1970) suggests that by limiting the availability of high-quality products in the market, the overall quality of the product will decrease and consumer perceptions of the product will shift to considering it as a lower quality, thereby decreasing its value. I link this aspect of value to rattan in my empirical analysis.

I include dimensions of value, abundance and scarcity in Table 2-2, highlighting the key perspectives from literature that I use in this study.

Table 2-2: Summary of dimensions of key perspectives on abundance and scarcity used in this study

Dimension	Key perspectives for study	Reference
Biogeophysical (re)production	The speed at which the species regenerates, its physical dimensions and perishability affect NTFP market and labour mechanisms that determine the value of the resource	(Belcher 2007; Boyd, Prudham & Schurman 2001; Ndoye, Ruíz-Pérez & Eyebe 1998; Suryanata 2005)
	Some biogeophysical characteristics resist commodification	(Bakker 2005)
Locational distribution and concentration	"Geographic concentration of the resource is, in a sense, a critical dimension or attribute of the relative scarcity of a resource, so it can be considered in combination with, or more specifically as part of, the relative scarcity characteristic."	(Barham et al. 1994, p.27)
	"Some resources, by their highly dispersed nature, almost inherently thwart efforts to monopolize their extraction."	(Barham et al. 1994, p.20)
	Geographies of resources can shape entire industries.	(Peluso 1992b)
	Due to the highly dispersed and remote materialities of many NTFPs, monitoring extraction and trade is difficult, leading to illicit trade.	(Barham et al. 1994; Duffy 2010; Sunderlin, Angelsen & Wunder 2004)
Quality and grade	Quality and grade affect and are affected by demand and technological changes.	(Bunker & Ciccantell 2005)
Value	Value is created through "manipulations and transformations as materials with use values are produced and in turn provide a basis for exchange value and further value creation as they are transformed into new commodities."	(Hudson 2011, p.4)
	Value is a social judgement that is placed on the resource.	(Simmel 1907)
	Value is the "potency for affecting attitudes and behaviour."	(Brock 1968, p.246)
Commodification	"any commodity will be valued to the extent that it is unavailable..."	(Brock 1968, p.246)
	"threat increases commodity-seeking behavior and the tendency to withhold commodities from others"	(Brock 1968, p.246)
	Competitive advantage is shaped by how valuable and imitable a commodity is.	(Barney 1991; Hart 1995; Newbert 2008)
	"exchange creates value...[and] what creates the link between exchange and value is *politics*, construed broadly."	(Appadurai 1986, p.3)
	Commodities are a unique kind of *thing*, with "a particular type of social potential."	(Appadurai 1986, p.26)
	The extent to which value is assigned to a commodity depends on the desirability and obtainability of the thing. Market actors use this to manipulate value.	(Barham et al. 1994; Hudson 2011; Islam 1981; Lynn 1991; Marx 1867; Simmel 1907)
	Exchange value is also often determined using imperfect information, especially over wide spatial distances	(Akerlof 1970; Chowdhury, Negassa & Torero 2005; Gereffi, Humphrey & Sturgeon 2005)

Understanding what materiality means for access

I have so far framed this section around the influence of materiality on access. Here, I synthesise this discussion to make the link explicit and show how I use the concept in my study. Access is the ability to benefit from *things*. Ribot and Peluso (2003) describe the ways in which actors can gain, maintain or control access through various mechanisms, which they make clear do not comprise an exhaustive list. Hudson (2011, p.2) makes a call to "open up the 'black box' of materials and their transformations in order to understand better why and how these can be manipulated in particular ways to create exchange value." An exploration of the extent to which actors are able to benefit from things, as material entities, will go a long way to answer Hudson's call.

Materiality of the *thing* contributes to contexts in which mechanisms of access are implemented. Like access, materiality is part of the 'commodity story' (cf. Bakker & Bridge 2006). Scarcity and abundance from biogeophysical and locational distribution perspectives have implications for access in that things are only available in specific conditions and countries. NTFPs are by definition forest-based, and forests are often characterised as remote. Therefore, biogeophysical constraints may present transportation, labour and communication challenges. These concepts are important considerations ranging from the logistics of getting to the NTFP, how to get the NTFP out of the forest and to market, and minding how the quality of the raw material might change as it is geographically translocated (see Hyman 1996 for a discussion on perishability problems in transporting NTFPs to market).

Value and commodification are key concepts for any commercialised NTFP. Bryant (1997, p.21) notes that rarely have "forests been valued for themselves. Rather, they have been valued for how they could be used to promote human welfare... Their utility has resided precisely in their incorporation in human activity." Neumann and Hirsch (2000) name neoliberal philosophies of commercialisation as one of the driving forces behind a rising interest in NTFPs in the 1980s. The notion of value, including the creation of value through controlling exchange, is central to understanding how NTFP markets function. Extremely high value NTFPs like gaharu

and swiftlet nests,[15] are exemplary of imbalanced use and exchange values. Value, in these cases, was created by exchange value rather than use. Considering the manipulation of scarcity, the concept of value is central to my understanding of access.

I therefore integrate these aspects of materiality as mediating factors of access. Materiality is part of the context, along with policy, through which mechanisms of access must be employed in order for actors to gain access and benefit from rattan. For this reason, my conceptual framework (illustrated on page 49 following this discussion) shows that materiality filters access to (the ability to benefit from) rattan.

2.3 Global production networks

I use *global production networks (GPN)* after Henderson et al. (2002) to understand processes of inter and intra-firm relations and actions related to the production of rattan. Literature on this topic is diverse and divergent, but has been evolving steadily since the 1960s using the lexicon of *filière*, commodity chains, global commodity chains, value chains, global value chains and global production networks to describe linkages among phases of production, each with their own distinct foci (Bair 2005; Faße, Grote & Winter 2009). Kaplinsky and Morris (2001, p.4), capture the collective concept by explaining it as follows:

> the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use.

The term *phase of production* refers to stages such as extraction, transformation, marketing, consumption and disposal. At each phase, value is added until final use. Actors may be active in more than one phase of production, depending on the level of vertical integration of each phase. The analysis of these processes:

15. A delicacy valued up to CAD10,000/kg (Marcone 2005).

> revolves around analysing the structure, actors and dynamics of value chains,[16] including examining the typologies and locations of chain actors, the linkages between them, and the dynamics of inclusion and exclusion. It also entails understanding the structure of rewards, the functional division of labour along a chain and its changing shape, the distribution of value-added and the role of standards in facilitating or hindering participation (Bolwig et al. 2010, p.174).

With this interpretation, the dynamics of access and exclusion within a production chain or network become apparent. Before I move into discussing specific aspects of production chains and networks as they apply to access, I will briefly discuss perspectives of each approach in order to understand the development of the concept.

2.3.1 Understanding production networks and chains

A GPN approach frames exchanges of goods and services in a way that can be analysed (Levy 2008). The notion of the linkages in processes is primarily a heuristic model. Therefore, whether the relations are framed as a chain or network is a matter of nuance, and possibly scale. GPN predecessors (value chain, commodity chain, global commodity chain - GCC, global value chain- GVC) tend to adopt elements of theory from the others (Coles 2011). The term *network* has been increasingly used to describe and define GCC and GVC (cf. Bair 2009; Gereffi 1994; Sturgeon 2008). Hopkins and Wallerstein (1986, p.159) described commodity chains as "a *network* of labor and *production* processes whose end result is a finished commodity" (emphasis added). This illustrates how much overlap there is among the concepts embedded within different terms, and how central the structural and relational aspects have been at the core of the evolution of chain and network thinking (cf. Dicken 2005).

Bair (2008) points out that GVC approaches recognise relational networks as one form of value chain structure and describe inter-firm co-ordination in a way consistent with much of the GPN literature. All three share a common intellectual lineage (Bair 2009). They also "all acknowledge that governance structures and their related power asymmetries within a chain/network have a major impact on firm-

16. I will come back on this term in a moment, but for now, suffice it to say that a "value chain" can be roughly equated with a GPN.

level upgrading prospects and the related regional development opportunities of the places they interconnect" (Coe et al. 2008b). Depending on the researcher, the distinctions among the terms can be very subtle or non existent, despite the various theoretical frameworks from which they have each evolved (Bair 2008, 2009). GVC is sometimes referred to as an evolution of GCC (cf. Keane 2008), but there are differences in the approaches as summarised in Table 2-3.

Table 2-3: Contending chain/ network perspectives

	Global Commodity Chains (GCCs)	**Global Value Chains (GVCs)**	**Global Production Networks (GPNs)**
Disciplinary background	Economic Sociology	Development Economics	Relational Economic Geography
Object of enquiry	Inter-firm networks in global industries	Sectoral logics of global industries	Global network configurations and regional development
Orienting concepts	Industry structure; Governance; Organisational learning; Industrial upgrading	Value-added chains; Governance models; Transaction costs Industrial upgrading and rents	Value creation, enhancement and capture; Corporate, collective and institutional power; Societal, network and territorial embeddedness
Intellectual influences	Multi-national corporation business literature; Comparative development	International business; Trade economics	GCC/GVC analyses Actor-network theory; Varieties of capitalism

Source: Coe and Hess (2006) summarising Bair (2005)

Sturgeon (2008, p.127) summarises the debate among these approaches as follows:

> While debates over the relative merits of terms and metaphors, such as global commodity chains, global value chains, global production networks, and chain governance will certainly continue, it is safe to say that this work shares a focus on the organizational and spatial structure and dynamics of industries, the strategies and behavior of major firms and their suppliers, and the need to identify scalable conceptual tools that help researchers move easily from local to global levels of analysis. These commonalities, in my view, define a core research agenda that cuts across these chain and network paradigms.

In the final analysis, the question of whether to adopt a GVC, GCC or GPN approach is one of epistemology and subtle nuance (Bair 2008; Sturgeon 2008). In this study, I prefer the GPN approach because it is effective at highlighting the embeddedness (discussed in more detail shortly) of geographically dispersed economic exchange networks in social relations (Bair 2008). The GPN theoretical foundations of embeddedness of market transactions in a social context resonates with social

network and access concepts I work with in this study; as does the greater flexibility to include non-firm actors in polycentric governance analysis compared with other approaches (Coe et al. 2008a), which is important for understanding access.

I embrace the similarities among GCC, GVC and GPN on the basic points that they all recognise globalisation of a capitalist economy, and to some extent they all recognise firms as important actors in influencing the distribution of capital (Starosta 2010). Unless I specifically refer to a GVC or GCC approach in this study, I consider a GPN generally as the processes by which *things* are transformed in shape, location and value, with consideration to not only the firms or people doing the upgrading, but also the institutions and aspects of materiality and governance that influence their processes.

A GPN approach considers the flows of capital between phases of production, and spaces in production networks (Hudson 2008). Production is not linear nor omnidirectional (Coe et al. 2008a; Cook & Crang 1996; Granovetter 1985; Peppard & Rylander 2006). GPN theorists consider that "a 'network' maps both the vertical and horizontal linkages between economic actors" (Sturgeon 2001, p.6) and suggest that by

> [a]dopting a contrasting network approach, organisations focus not on the company or the industry, but the value-creating system itself, within which different economic actors – supplier, partners, allies, and customers – work together to co-produce value (Peppard & Rylander 2006, pp.131-132).

According to Bair (2008), the formative work on embedded social interactions in economic relations that developed into network approaches is largely attributed to the work of Granovetter (1985).[17] "In referring to the 'new sociology of economic life', Granovetter aimed not just to reclaim the economy as a legitimate domain for sociological inquiry, but also to differentiate the research agenda he was proposing from older traditions of economic sociology" (Bair 2008, p.341). GPN is based on theories of new institutional economics with influences from the works of Latour, Law and Callon on Actor-Network Theory (cf. Law 1999) in as much as it is

17. Granovetter was also one of the formative thinkers on social networks, discussed in Sub-section 2.3.2. Hess and Yeung (2006) also cite Ronald Burt, also referenced in Sub-section 2.3.2.

concerned with the relationships among actors and its rejection of traditional dualisms including global-local and structure-agency (Coe et al. 2008b; Henderson et al. 2002). Early development of GPNs had the explicit objective of developing a "framework for the analysis of economic integration and its relation to the asymmetries of economic and social development" (Henderson et al. 2002).

Coe et al. (2008a, p.2) describe GPN as reflecting the "fundamental structural and relational nature of how production, distribution and consumption of goods and services are—indeed always have been—organized." This concept has been proposed by other authors as 'international production networks' and 'cross-border production networks' (Borrus et al. 2000), but the basic argument remains similar.

GPN theorists prefer *production* to *commodity* because of the focus on process. The term *production* is used to "encompass the whole gamut of activities comprising the circuit of production—that is, the production, exchange and consumption in various ways of what is produced, intentionally and unintentionally" (Hudson 2008, p.422). *Network* better represents the diversity of actors and relationships among actors that can be analysed, which may be multi directional and dimensional (Dicken 2005; Henderson et al. 2002). The term *global* captures space that may transcend national boundaries and is preferred to the term *international* or *transnational*, which are state-centred (Henderson et al. 2002).

Production networks are conceptualised as fluid and dynamic exchanges among actors (Coe et al. 2008a; Levy 2008). Coe et al. highlight that GPNs focus on the "interconnected functions, operations and transactions through which a specific product or service is produced, distributed and consumed" (2008a, p.272). At the core of GPN approaches are the institutional contexts and power dynamics (Bair 2008, p.357). These dynamics exist among spatially dispersed actors (Bair 2008, 2009). GPN captures a wide range of actors regardless of the types of relations or spatial dispersion (Coe et al. 2008a).

In the following headings, I introduce some of the most salient concepts within the GPN approach: embeddedness in networks, phases of production, linkages among phases of production, upgrading and GPN governance.

Embeddedness in networks

The production network approach is supported by other authors who argue that market transactions are embedded within social relations rather than the other way around (cf. Bourdieu 2005; Granovetter 1985). This body of work focusses on concepts of social capital within production networks and value chains. Bair (2008, p.340) critiques this approach as follows:

> While this 'networks and embeddedness paradigm' has underscored the impact of social structure on economic activity and outcomes, it has also generated a rather myopic view of contemporary economic organization.

The notion of embeddedness has been used in different ways by different authors, contributing to the confusion of its meaning in GPNs (Hess 2004). From its origins in the works of Karl Polanyi, embeddedness was concerned with the society-economy nexus. Polanyi (2001 originally published in 1944) argued that in traditional economies, the economy is embedded in the social; but in global economies, the social is embedded in the economy. While this perspective was reconsidered by Granovetter (1985) to the extent that all economies are embedded in social contexts, its main contribution was to assert that the economy and society have an effect on one another and that markets are socially constructed (Hess 2004).

Granovetter (1985) built on the interrelatedness of society and economy in his influential work on embeddedness. He rejected Polanyi's polarisation of global and pre-global economies and the accompanying inverse of embeddedness. He refers to Polanyi's position as 'strong embeddedness' and likens it to the 'substantivist' school of anthropology for which he uses Scott's (1976) work on the moral economy as an example. Granovetter also classifies "traditional theories of economic development" as strong embeddedness in contrast to his own "weak embeddedness position" in which actors' attempts at purposive action are simply "embedded in concrete, ongoing systems of social relations" (Granovetter 1992, pp.28&32). Granovetter's most significant contribution to the concept of embeddedness is the movement

toward actors and relationships among actors– including institutional actors as the key analytical categories in networks– and the assertion that markets are not necessarily hierarchical (Bair 2009; Hess 2004). He also "broke the ground for the production of a vast literature [on] embedded relations and social structures in the context of market societies" (Hess 2004, p.171).

GPNs offer the opportunity to apply a multi-scalar relational concept of place and space (Hess 2004). Shortcomings of GPN analysis, often relating to an excessive focus on ongoing social relations rather than larger network structures, are averted by using a multi-scalar approach that includes societal, network and territorial embeddedness (Hess 2004). Societal embeddedness is concerned with cultural and political background of an actor. This is the type of embeddedness most closely aligning with Polanyi's concept of embeddedness (Hess 2004). Network embeddedness is concerned with the structure of relations among actors. Territorial embeddedness is concerned with place, which is the geographical host of social and economic dynamics (Hess 2004). Hess (2004) suggests that these scales of embeddedness (from social to territorial) occur simultaneously and are processes that are repeated over time. This will become an important perspective in the empirical sections of this study as I analyse the mechanisms of access embedded in relations among actors and within the network.

Phases of production

Chains and networks both include bundles of activities that comprise a phase of production, or sometimes called a *node* (Sturgeon 2008). These phases are heuristically discrete collections of similar activities or functions within the GPN. Activities include "a combination of physical transformation and the input of various producer services" (Kaplinsky & Morris 2001, p.4). The ways in which these phases are defined, are a matter of case-by-case interpretation and may be subject to different perspectives. They are typically framed in terms of stages of transformation, such as design, production, wholesaling, retailing and so on. In any case, for the purpose of theory-building and analysis, phases are the building blocks within the network between which linkages are made and through which upgrading occurs.

Linkages among phases of production

Linkages among phases of production can take many forms and occur among actors identifying with one or more phase. Sturgeon (2008, p.118) classifies them as

> (1) simple *market* linkages, governed by price; (2) *modular* linkages, in which complex information regarding the transaction is codified and often digitized before being passed to highly competent suppliers; (3) *relational* linkages, in which tacit information is exchanged between buyers and highly competent suppliers; (4) *captive* linkages, in which less competent suppliers are provided with detailed instructions; and (5) linkages within the same firm, governed by management *hierarchy*. (see also Gereffi et al. 2005)

Linkages (sometimes called *flows*) among actors are simply relationships and can be analysed by the structural and relational mechanisms of access. The 'distance' between actors in phases of production have long been studied within GPN, GVC and GCC literature (Gereffi et al. 2005). This distance is understood as social distance, with greater distances incurring greater risks and costs. One of the business strategies in integrating actors within a GPN is to reduce this social distance through strengthening social relations. The notions of trust,[18] loyalty[19] and reputation[20] serve to strengthen these social relations (Gereffi et al. 2005; Sturgeon 2008; Vieira & Traill 2008) and early GPN thinkers theorised that they underpin linkages among firms (Granovetter 1985). These features of social relations reduce distance among trading partners by strengthening confidence that agreements will be upheld and there are shared understandings beyond, or reinforcing administrative and contractual agreements (Thompson 2003). Ponte and Gibbon (2005) argue that quality standards and conventions can serve to decrease this social distance by providing buyers and sellers more confidence in the governance of the GPN, even without trust directly among trading partners. Similarly, institutional arrangements can reduce perceptions of risk and reduce social distance (Cook et al. 2005).

18. Vieira uses the Morrow et al. (2004, p.50) definition of trust: "one's overall belief that another individual, group or organization will not act to exploit one's vulnerabilities."

19. Loyalty is the extent to which repeated transactions are guaranteed among actors (Thompson 2003).

20. Reputation is the way that an actor, based on her/his own experience or her/his perception of other actors' experience, believe another actor to be honest and consistent (Thompson 2003) – in effect, consistency of trustworthiness.

Upgrading

Upgrading, also referred to as *value addition*, describes "the process by which economic actors – firms and workers – move from low-value to relatively high-value activities in global production networks" (Gereffi et al. 2005, p.71). The idea of commodities or products increasing in value as they are transformed is rooted in classical forms of economics. For Marx, upgrading meant the increase of capital through *Kapitalverwertung*, or valorisation of capital (specifically through labour) (Harman 2009; Starosta 2010). However, upgrading is more than increases in value through contribution of labour, and more than a change in use-value. It includes moving to more sophisticated product lines, making processes more efficient, engaging in other types of activities within the GPN, moving products and services to new markets and engaging in new sectors of production (Gereffi et al. 2001; Humphrey & Schmitz 2002). Product upgrading often signifies a new phase of production in a GPN. There are two primary upgrading strategies used by GPN actors. The first concerns "identifying the sources of capabilities that lead to accessing new markets and to increasing competences" and the other is about "examining what conditions and trajectories can lead to 'a better deal' for developing country firms" (Ponte & Ewert 2009, p.1637). The conditions by which actors make upgrading choices exist within the governance of the GPN.

Governance in global production networks

Governance, as the form of linkages among phases of production (Keane 2008), is central to understanding power dynamics within GPNs. The GPN concept, more than other models, provides a robust framework for analysing polycentric governance structures (Coe et al. 2008a). Classical GVC and GCC governance models theorise buyer and producer-driven governance structures (eg. Gereffi 1999). Other alternatives have been theorised (see Bair 2009 for a detailed description), usually with one type of actor governing the chain, such as intermediaries identified by Hyman (1996) and Neumann and Hirsch (2000). GPN broadens these ideas to allow for different types of actors to play different governance roles at different points in the GPN (Coe & Hess 2006; Levy 2008).

I use a GPN approach to governance, as elucidated by Levy (2008, p.2) as "the rules, institutions, and norms that channel and constrain economic activity and its impacts." Coe and Hess (2006) suggest there are three aspects of governance: intra-firm, inter-firm, and institutional and political. Kaplinsky (2000a) framed the first two as internal and the latter as external governance.[21] I use those concepts in my conceptual framework, noting that I focus on inter-firm relations as internal to the direct actors in the exchange network. I use the concept of external governance as institutional and political relations that both directly (through trade restrictions) and indirectly (through national park creation) affect the ability to benefit from rattan. While internal governance is embedded within the relations among actors, external governance is not always (Schreckenberg & Mitchell 2011).

Considering that Ribot and Peluso's Theory of Access takes into special account the distinction between rights and abilities, and allows for the consideration of illegal access, governance considerations within GPN thinking could be broadened. There has been little GVC, GCC, or GPN research done on the role of illicit access in governance. Wilson and Zambrano (1993) studied a cocaine commodity chain in which all actors were 'illegal' and Pauls and Franz (2013) looked specifically at clandestine trade structures of medicinal plants in India. However, the inclusion of 'norms' and 'institutions' in Levy's definition of governance, construed broadly, does not preclude consideration of illegal actors within governance processes. Henderson (2002) writes about GPNs, "[a]s the ways in which power is mobilized and exercised is likely to vary for a combination of firm and sector-specific reasons, it is reasonable to expect that the architecture of governance is likely to exhibit considerable variation." By this description, both illegal and legal roles in governance could be considered. Thinking of governance as "the ways in which power is mobilized and exercised" fits well with bundles of power in my approach to access, as does the recognition that governance is likely to be different in each GPN, or possibly in the same GPN over time.

21. Kaplinsky (2000b) suggests that value chain governance can be considered as legislative (making standards), judicial (enforcing and monitoring standards), and executive (supporting and managing processes to meet standards). See also Schreckenberg and Mitchell (2011).

2.3.2 Social networks within a global production network

I do not only use the network approach in thinking about relationships between firms and the upgrading of rattan, but also in terms of networks of individuals, especially at the village level. In a sense, this is a network within the GPN and might be considered as equivalent to intra-firm networks discussed already, but instead of a firm, I explore the village, and specifically rattan collectors within the village.

A social network is a structure of relations among actors that is formed and re-formed by mechanisms and processes (Borgatti & Halgin 2011; Lin 1999, 2001). The focus of research on social networks is on patterns of relationships among actors as social entities (Faust & Wasserman 1994). I use this concept because of its focus on measuring and understanding relationships, in which mechanisms of access are realised (Ribot & Peluso 2003). I introduced the concept of access as it relates to power already and because, according to Foucault, power exists as practice exercised "*within* the social body" (Foucault 1980, p.39); social network is an important concept for both. Parsons (1967) uses the analogy of financial transactions to describe his concept of power and goes into some detail of how market exchanges among actors reflect power. This analogy highlights ways in which social networks and GPNs are connected as market transactions are embedded within social relationships (cf. Granovetter 1985).

In terms of access, social network perspectives and theories are insightful into the patterns of relationships among actors that gain, maintain, control, or are excluded from a *thing*. Social network perspectives are rooted in graph theory and date back to the 1700s (Biggs et al. 1986), experiencing a renaissance in the 1930s (Faust & Wasserman 1994; Freeman 1979, 2004). Elements of social networks reach back to the work of Comte, Simmel and Durkheim (Freeman 2004). These are the theories that acted as the very basis for sociology and theorise the structures in which actors are connected. GPN and social network theories share some of the same roots. Hobson (1897) was one of the earliest analysts of the linkages between corporations, which had influence on social network (Freeman 2004) and value chain (and later

GPN) theory. Hobson's work also had an impact on sociometry developed by gestalt-influenced social psychologist Moreno in the 1930s (Scott 2000), and anthropologists such as Warner, Mayo and Radcliffe-Brown (Freeman 2004).

Networks are comprised of actors (sometimes called nodes) and relationships (sometimes called edges, bonds, bridges or linkages). Actors are autonomous, but interdependent units (Faust & Wasserman 1994) bound by relationships when in associations with one or more other actors (alters). Relationships constitute the transfer of flow of material or nonmaterial resources (Faust & Wasserman 1994).

Infrequent or absent relationships are sometimes considered insignificant from a network perspective (Cook & Yamagishi 1992). Using social networks to understand access, however, means that latent relationships are critically important. They prompt the questions that relate to the absence of access, or exclusion (Hall et al. 2011) when an actor or type of actor is not engaged in relationships where they might be expected to, or in which they wished to be engaged.

Conventional commodity studies tend to aggregate actors by function into phases of production within the chain or GPN (Hess & Yeung 2006). Although the GPN approach is better positioned to capture the heterogeneity of relationships among actors than GCC (which focusses more on governance), its focus is primarily on firm and non-firm institutional dimensions (Hess & Yeung 2006). This level of analysis is useful for understanding some types of social, economic and financial analysis, but fails to capture the diversity of actors with convergent and divergent interests that result in conflict, inequity and alliances (Agarwal 2010; Barham, Bunker & O'Hearn 1994; see also Takasaki, Barham & Coomes 2001), especially at the village level.

Access to NTFPs occurs within social relationships. These relationships are understood within the context of social networks, but also tie into the linkages within GPNs (see Sub-section 2.3.1). Social network concepts are useful to understand how actors, and the relationships among actors, are patterned to facilitate benefit from NTFPs and to understand what mechanisms of access are used by whom and with what result. NTFPs are upgraded through transactions made by actors, using mechanisms of access that result in upgrading and therefore access to market.

Inevitably, there is differentiation among GPN actors in terms of which actors are most central to the extraction, production, transformation and sale phases of production. Social network perspectives enable me to see what are the common characteristics of actors in more central positions, what clusters of actors emerge in the network, and what mechanisms of access are used by actors in these divergent positions.

2.3.3 Understanding access in global production networks

Although Ribot (1998, 2005; Ribot & Peluso 2003) uses the terminology *commodity chain*, after access analysis is applied, the commodity chains more resemble GPNs as access analysis applies a lens of power and politics within a commodity chain. He also tells the stories of complexity that paint a picture of network more than a chain, showing the divergent interests of different groups in different roles and places, a key tenet of GPNs (Henderson et al. 2002).

The various phases of production within a GPN allow for an exploration of mechanisms of access within and among each phase of production. The focus on *production* in GPN thinking, rather than *value* or *commodity*, emphasises the social processes by which a *thing* is upgraded (Henderson et al. 2002). Within these social processes, actors are consistently competing for resources and assets (Kaplinsky & Morris 2001), which they can in turn leverage as mechanisms of access. Processes of obtaining and activating mechanisms of access are embedded within the relationships among actors, in which the terms of participation are negotiated and transactions made (Granovetter 1985). There are several interactions within and among production phases that contribute to each transaction and enable products to be upgraded or value added. The ways in which an actor may gain, maintain or control the ability to benefit are myriad.

But the ability to benefit from a *thing* in a GPN is not limited to the ability to leverage mechanisms of access. Actors are also limited by the structure of the GPN itself, including its governance structures, which are shaped by the policy environment. They are also limited by the demand that the materiality of the resource puts on the GPN. This is why, in my conceptual diagram on page 49, I

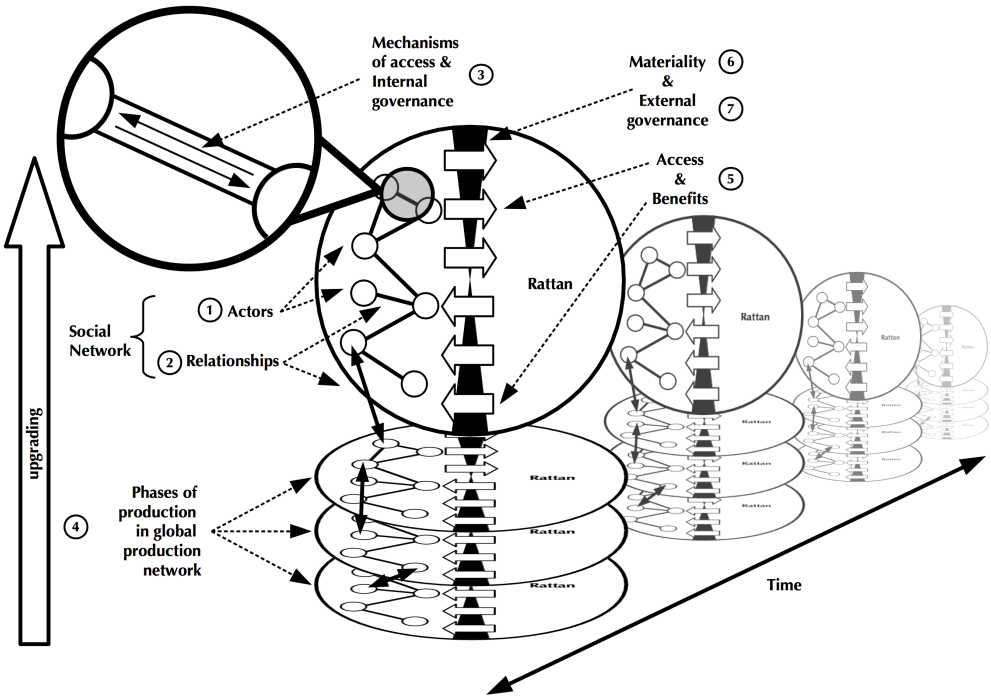
show that mechanisms of access are embedded within the social processes among actors, but there are also material and policy environments in which these processes take place, which serve to mediate access to the resource.

2.4 Summary

In this chapter, I reviewed the state of knowledge around NTFP, access and GPNs. I used NTFP theory to locate the study within key current debates around forests and wealth, elite capture and conservation. I then reviewed theories around access, arguing that by focussing on access I can highlight essential relations pertaining to how different actors benefit from NTFPs in different ways. By using a rattan GPN as the case for my study, I can study the relations in which access to rattan occur at multiple levels and at different scales.

These theories and concepts culminate in my conceptual framework where each of these bodies of theory is represented as a variable. Each variable corresponds to a research question, which I introduced in Chapter 1 and explore more in the next chapter. Figure 2-1 shows my conceptual framework diagram.

Figure 2-1: Conceptual framework diagram



I argue that actors (1) have relationships (2) with one another in which structural and relational mechanisms of access are embedded (3). Actors and relationships among them form and are formed by phases of production (4). The ability of actors to benefit (5) from a resource is mediated by the materiality of the resource (6) and external GPN governance structures (7). Materiality both affects and is affected by access. In the case of scarcity, access and control influences abundance through the intensity of extraction. As a resource becomes more scarce, and its value increases, actor access and access control will also be transformed.

External governance is a mediating factor for the ability to benefit from rattan. Internal governance occurs within the relationships among actors. External governance shapes the conditions by which actors within the GPN may apply mechanisms of access, such as trade policies enacted by the government (but often with the involvement of firm actors). Within the GPN approach, there are phases of production, but the heterogeneity within each phase is often lost, especially at the individual person-actor levels. While there have been exceptional attempts to

understand access and access control within commodity chains, the bulk of literature tends to consider phases of production at a mesa level and often does not focus on interactions among individual actors. Social network theory is explicitly concerned with the empirical measurement of relationships among actors. I therefore use it, especially at the village level, to understand issues of access and to understand access at multiple levels within the GPN.

The dynamics of access repeat themselves at each level of the GPN and affect the access of other actors not only within a phase of production but among them, and change over time.

Using the theories discussed in this chapter, my conceptual framework positions my research, which I detail in the next chapter followed by five chapters of empirical analysis and a synthesis.

3

Research design

The objective of the chapter is to detail the research design for my study. I start this chapter with a brief introduction to my ontology and epistemology, followed by my methodology as a case study and progression of research activities in Sections 3.1 and 3.2. I present my methods of data collection and analysis and then some ethical considerations in Sections 3.3 to 3.5. Finally, I reflect on the ways in which I adapted the study as I engaged in fieldwork and indicate some key challenges and limitations to the study in Sections 3.6 and 3.7. At the end of the chapter, I tie data collection and analysis methods to the research questions, showing how each research question connects with each variable, and method.

3.1 Research ontology and epistemology

I approach my research from a critical realist perspective. Critical realism, in the way that Bhaskar (1975) originally conceptualised it, contends that there are three realms: the empirical, actual and real. Its focus is to "explore the realm of the real and how it relates to the other two domains" (Alvesson & Sköldberg 2009, p.40). In this sense, *mechanisms of access* as described by Ribot and Peluso (2003), are within the realm of the real because they are productive of phenomena and events. As a critical realist, I believe there are multiple interpretations of a real world both in terms of the *world as it is* (intransitive) and what is *knowable* (transitive) about the world. Critical realism therefore serves as both ontology and epistemology, although addressing each distinctly (Burnett 2007) and "blends epistemological skepticism with ontological realism" (Forsyth 2003, p.21). Perhaps not coincidentally, the term *mechanism* is used both by Bhaskar (1975) and Ribot and Peluso to describe the relations among actors by which events (or access) are realised. Within this ontology, social objects are affected by the way they are understood, but they exist all the same, independent of that understanding (cf. Sayer 2000). Natural and social worlds are part of the same "totalizing logic" (Thomsen 1977, p.349). This inseparability of the natural and social worlds serves this research well, particularly to understand how the natural and social influence one another from an access perspective.

3.2 Research methodology and implementation

In this section, I first discuss my methodology and then, my research implementation by describing the ways in which I conducted the research in order to answer my research questions, which I restate here:

How do global production network actors benefit (or not benefit) from rattan originating in and near Lore Lindu National Park, Indonesia?

1. What actors are involved in the rattan global production network?
2. What relationships exist among actors?
3. How do different actors leverage and negotiate mechanisms to gain, maintain and control access to rattan?
4. How is access to rattan at one phase of production connected to access at another phase?
5. What benefits do actors derive from access to rattan?
6. How do the materiality of rattan and the ability to benefit from rattan affect one another?
7. How does government policy on trade and the national park affect rattan trade?

3.2.1 Methodology

Based on a critical realist approach, I aim to understand access from social perspectives in consideration of the natural. As I mention in Section 3.7, there are limits to what can be understood and in this study I only understand the natural through social interpretation of natural phenomena (cf. Tsing 2013). I use mixed-methods that integrate qualitative and quantitative data collection and analysis approaches within a case study methodology. In this section, I introduce the case study, and explain my mixed methods approach.

Case study

My methodology includes a case study of the rattan GPN originating in Lore Lindu National Park and ending in retail shops in the UK (exploring global actors along the way and in parallel). Case studies are particularly applicable in real-life situations over which the researcher has little control and asks questions of *how* and *why* (Yin 2003). A case study approach is appropriate for both qualitative and quantitative research and is "particularly useful when the researcher is trying to uncover a relationship between a phenomenon and the context in which it is occurring" (Gray 2004, p.124). I use a nested case study approach in which I focus on rattan originating from a particular village rather than all villages in the GPN, but also look at the wider network at other phases of production. My specific focus is less on the

financial aspects within the GPN and more on the social relations among actors and the institutions that structure and are structured by these relations (cf. Bernstein 1996; Ribot 1998).

A case study design provides an appropriate universe in which to conduct a study of this scale (cf. Flyvbjerg 2011) as it effectively enables me to explore the rattan GPN in-depth. The GPN forms the basis of the case study, starting from a specific geographical community and working up through various phases of production and upgrading. The case study is exploratory in the sense that it takes an inductive approach to understanding mechanisms of access used by actors within the GPN (Gray 2004).

In the process of case selection, I used Indonesia as starting point for the GPN for several reasons. First, my interest was in interactions between people and forests. I had worked with value chains for several years prior to commencing my studies at UEA, and wanted to understand issues of forest-based natural resources and human interactions better. Second, Indonesia, as I described in Chapter 1, is a globally important country for forests. Third, I had been working in Indonesia for several years and had a comfort with the language and cultures. Although this study is not directly related to my past work, Indonesia is a place that I perceived that I could perhaps conduct the research with the greatest efficiency. Finally, as I confirmed in scoping, Indonesia is the dominant country for rattan production in the world. Figure 3-1 shows the islands most involved in the rattan GPN in Indonesia, with rattan sources in grey (Sumatra, Kalimantan and Sulawesi) and furniture producer in black (Java). I provide more detail in Chapter 4.

Figure 3-1: Map of Indonesia and key islands for rattan

I chose the case of a rattan GPN after careful consideration of a forest-based product that is moved from the forest to international markets and is changed not only in location, but also in form along the way. These changes reveal distinct phases of production within the GPN in which I could research differences at each phase. Further, rattan trade has been the subject of several policy initiatives by the Indonesian government over the past 35 years. I considered that these policy changes might provide interesting insights to access. I explain more on specific case choices in Section 3.3 on methods of data collection when I discuss sampling.

NTFPs are upgraded and transformed in different ways. They also have specific material properties that make insights from the rattan GPN difficult to generalise for all NTFPs, but rattan is commercialised in some specific ways that lend to interesting empirical findings. First, rattan enters upgrade markets at different points. Domestically processed and internationally processed rattan reveal very different mechanisms of access, even though most rattan is processed into furniture. Second, like other NTFPs (such as gaharu), and unlike others (such as cinnamon, starling nests, and honey) many varieties of rattan have proven difficult to cultivate. This means that actors can control biogeophysical properties of rattan to a limited extent. Third, rattan's production network is global. While many NTFPs are primarily consumed locally, such as medicinal herbs, rattan is used locally on a small scale and mostly traded internationally. Last, rattan is subject to competition by both other natural products, such as wood, water hyacinth, banana leaves and so on, and also synthetic and manufactured products. These products are discussed in Chapter 4.

Rattan and the rattan GPN are therefore similar to other NTFPs in some ways and unique in others. It is unlikely that any of my findings will apply to all NTFPs, but at the same time, many of the findings apply to other NTFPs and other natural resource products.

Mixed methods

I take a mixed-methods approach that allows me to elucidate both qualitative and quantitative data. Qualitative and quantitative approaches need not conflict on ontological nor methodological levels (Bergman 2008). Following Greene (2006, p.94), a "methodology for social inquiry gains credibility and persuasiveness when [philosophical assumptions, methodologies, practical enquiry and the statement of location of the enquiry] act in concert with one another, when their interlocking connections are smooth and well oiled, when the overall presentation is strong, coherent, well articulated and thus persuasive." Because I examine access in a GPN, I collect and analyse a wide range of qualitative and quantitative data. These data comprise a basis for a complementarity mixed-method study in that "qualitative and quantitative methods are used to measure overlapping but also different facets of a phenomenon, yielding an enriched, elaborated understanding of that phenomenon" (Greene et al. 1989, p.258).

Although I recognise the academic debates over the compatibility of qualitative and quantitative data and methods, often framed in ostensibly positivist versus constructivist narratives, I take a pragmatic approach (cf. Creswell 2009) in which I address the different dimensions of the central issue raised in my research question using the appropriate approach. In a mixed-method approach, more precise mapping and measurements can be made with quantitative data, and more process and context data can be analysed qualitatively (Edwards 2010). Rather than using qualitative data to support quantitative findings, as many of the mixed-methods studies do (Hesse-Biber 2010), I use a theoretical lens to collect and analyse quantitative and qualitative data concurrently and in different ways for different research questions (cf. Creswell 2009). In the next sections, I explain the data collection and analysis methods that I use in my empirical chapters.

3.2.2 Research implementation

In this section I briefly outline how the research was implemented by reviewing the timeline, languages of implementation and research assistance I used.

Research roll-out

In Table 3-1, below, I summarise my field work implementation, ordered by place of implementation, which roughly corresponds to the travel of rattan through the GPN.

Table 3-1: Research implementation summary

Locations	Target Actors, Non-Actors and Documents	Data collection methods	Chapters used	2013 (month)								2014
				2	3	4	5	6	7	8	9	9
Utani	Rattan collectors	Household survey	5	X	X							
		Semi-structured interview	5		X	X						
		Group interview	5			X						
		Direct observation	5	X	X	X						
		Participatory analysis	5								X	
Desa Dua	Rattan Collectors	Household survey	5			X						
Belia	Rattan traders; forest police	Semi-structured interview	5 & 6			X						
	Rattan traders	Direct observation	5 & 6			X						
Palu	Rattan processors, furniture factories, government actors (industry and forest), NGOs	Semi-structured interview	6		X	X						
		Document analysis	6			X						
Jakarta	Trade associations, exporters, government actors (industry)	Semi-structured interview	7		X		X		X		X	
		Document analysis	7					X	X			
Cirebon, Surabaya	Rattan factories, government actors (industry), exporters transporters	Semi-structured interviews;	7				X	X				
		Document analysis	7					X				
United Kingdom	Rattan importers, rattan factories, retailers	Semi-structured interviews	8					X				
		Structured survey (online)	8					X	X	X	X	
China Sri Lanka	Rattan importers / exporters, rattan factories	Semi-structured interviews	8						X	X		
		Structured survey (online)	8					X	X	X	X	
International (All)	National-level rattan trades	Document analysis	8									X
International (Other)	Rattan importers, rattan factories, retailers	Structured survey (online)	7 & 8					X	X	X	X	
International (Other)	Furniture producers, sellers and buyers	Structured survey (online)	7 & 8									X

Language

Indonesian interviews were conducted in Bahasa Indonesia in the villages and cities alike. Because the villages are remote, their languages are unique to limited areas. All villagers are therefore fluent in Bahasa Indonesia, which allows them to communicate with villagers from other villages. Moving up the GPN, Bahasa Indonesia is the principal language of business communication in Indonesia. Since 2009, I have developed proficiency in the language, and therefore conducted interviews directly without interpretation. Interviews outside of Indonesia were conducted in English and Bahasa Indonesia with assistance from local interpreters as required.

In Sri Lanka and China I conducted informal interviews with rattan material suppliers. Although this incurred some bias because respondents were clients of the interpreter, I would not have otherwise been able to gain access, or even find their factories, within the amount of time that I had.

The first online survey, which I targeted principally at China, Indonesia, Singapore, UK and USA, was in English, Indonesian and Chinese. The second online survey was in English and Indonesian.

Research assistance

Fieldwork was undertaken with the competent assistance of my wife, Nonie Kaban, holding an MBA from the University of East Anglia and with a keen interest in GPNs. An Indonesian national, her bilingual capacities, ability to connect with people, competence in interviewing and curiosity were all tremendous assets. Nonie was responsible for ensuring that the concepts were translated to make sense in the local context. She delivered many of the household surveys and joined me in most of the other interviews up to Palu. We translated and interpreted responses to interviews together and she translated the structured surveys into Indonesian.

For the collection of village level data through household surveys in Desa Dua, I engaged the assistance of Amir, from KARSA, a local NGO that provided logistical support and Rahmat Firman, an undergraduate student at the University of Tadulako (UNTAD), based in Palu. They conducted all their fieldwork in four days.

English-Chinese translation was provided by Mingming, based in the World Agroforestry Centre (ICRAF) in China.

Approach to respondents and communication of research objectives

Approach to respondents varied depending on the type of respondent. At the village level, my approach commenced with the introduction to the village head through KARSA, an NGO working in the Lore Lindu area and with connection to the village. After gaining permission from the village head to move forward, a meeting was held in which 40 to 50 men attended for a general discussion on the research with an opportunity to ask questions. Attendees were informed of the objectives of the research consistent with the university ethics approval of the study: that anonymity will be protected, that participation is optional and rescindable, and that the process will involve a series of interviews in the household. They were given the opportunity to discuss whether or not they agreed with my research proposal for several days while I left the village. I returned to obtain their consent and proceeded on that basis. Further up the GPN, I visited respondents at their homes or offices to communicate similar messages. Later on, approach was by phone or e-mail.

3.3 Methods for data collection

In a multi-scalar study, different tools are often required in order to collect different data and to address different variables. In this section, I detail the methods that I used during this research. Table 3-2 indicates the number of responses for each method and how I analysed the data (discussed in Section 3.4).

Table 3-2: Summary of data collection methods, responses and analysis methods

Data collection method	Data source	Number of responses	VCA	QDA	SNA	DST
Structured household census	Village actors & non-actors	132			X	X
SSI - Village network interview	Village actors	48			X	
SSI - Detailed village actor interview	Village actors	15	X	X	X	
SSI - Institutional actor and non-actor interview	Intermediaries, company managers, association leaders and government officials	71	X	X		
Group interview	Village actors	1		X	X	
Document collection	Media, legal documents, policies	-	X	X		X
Informal interviews and direct observation	All actors	-	X	X	X	
Structured online survey	Company managers	135 complete 164 partial	X	X		X
Total		**567**				

VCA= Value Chain Analysis; QDA= Qualitative Data Analysis; SNA= Social Network Analysis; DST= Descriptive Statistics

Each method is detailed in the following sub-sections. In Table 3-3, I present the main variables from my conceptual framework (described in Section 2.4 on page 48) and express some of the main indicators that I analyse for each variable. At the end of this chapter, I show how the research questions, variables and methods to fit together. One of the advantages of a mixed-method approach is that different variables can be addressed using different methods. Indicators answer the specific research questions listed in the last column of the table, and were used as a basis of data collection and further analysis.

Table 3-3: Indicators by variable used in data collection and analysis

Variable	Indicators	Question
Mechanisms of Access	• How actors articulate legitimation of access • Statutory legality of access • Customary claims • See Figure 3-6 on page 75 for structural and relational mechanisms	***3***
Access	Access is a result of mechanisms of access and can be considered activated when benefits are experienced by actors. It is therefore not directly measured, but is conceptually relevant. It is revealed in the space between mechanisms of access and benefits.	***3,4,6***
Benefits	• Costs of acquiring the resource • Costs of upgrading the resource • Sales volume • Sale price • Other stated benefits (legitimisation of control, social status etc)	***6***
Actors	• People engaging in an activity related to the GPN • Groups of people having a similar function within the GPN • People not active in the GPN • Recognised authorities and institutions • Industry associations	***1***
Relationships	• Trades in GPN • Training or extension • Permits • Industry association linkages with members and government • Customary leadership / authoritative permissions • Family support	***2***
Phase of production in GPN	• Functions of actors related to the forest resource • Relationships between phases	***1,4,6***
Materiality of rattan	• Transformations during upgrading • Upgrading techniques • Policies around resource management • Scale/quality, complexity/risk, scarcity/abundance, value/intensity, diversity/dependence • Seasonality	***5***
External governance	• Changes in trade related to new rattan trade policies • Perceptions of rattan trade policy by actors • Perceptions of national park boundaries by actors	***7***
Time / History	• Changes in access, GPN, materiality and social network over time	***1,2,3,4,5,6,7***

3.3.1 Structured household census

I used a structured household census to identify the livelihood activities of members of the household, identify rattan actors, and collect data on household wealth. The household survey was administered in two villages. First in Utani, and then in Desa Dua. Utani was the main village and the survey results were used to target subsequent interviews, as discussed in the explanation of semi-structured interview methods below. Desa Dua villagers access Utani-controlled forest to collect rattan. I implemented the household survey in Desa Dua so that I could analyse relationships between wealth and rattan in another context. In Desa Dua, the household survey

was modified to include social network data due to the fact that follow up to the survey was minimal and I wanted to get a sense of whether or not social network structures differed in the two villages.

The survey was administered to an adult member of each of 87 households in Utani and 50 in Desa Dua (with five households unavailable or refused). This survey provided basic demographic data on the household, crude insight into household wealth, and details of the participation of household members' direct participation in income and household input generation activities, including rattan. Table 3-4, below, shows the total number of households interviewed in each village.

Table 3-4: Household survey implementation

Village	Number of Households (N)	Sample Size (n)	Sample Size (%)
Utani	87	82	94
Desa Dua	50	50	100
Total	***137***	***132***	***96***

The surveys took about 15 minutes and were completed by two researchers over a three month period with a 96 per cent response rate. The household survey templates are in Appendix B.

3.3.2 Semi-structured interviews

I used different interview instruments for different types of actors as Table 3-5 shows. I also detail each of these instruments in the sections to follow and Appendix C includes the checklists that I used.

Table 3-5: Summary of instruments with corresponding sample frame

Instrument	Number of Actors (N)	Sample size (n)	Sample Size (%)
Village Network Interview	73	48	66
Detailed Village Interview	57	15	26
Institutional actor and non-actor interview	See Table 3-6 on page 65	71	N/A
Total		***135***	

Village network interview

The network interview was designed to understand social networks. The interview tool simply prompted the respondent to list the names of actors (people or institutions) with whom the actor interacts (alters) to conduct his rattan-related activities and to identify the nature of the interaction. Based on the findings related to forest activities in the household surveys, I proceeded to interview all those identified as 'actors', indicated by direct participation in rattan activities. There were 73 rattan collectors of whom 48 were interviewed using the network survey selected through convenience sampling with an objective of interviewing rattan collectors from different rattan collection crews in order to capture any diversity among the groups. In Desa Dua, the modified household survey included network interviews with 13 of 16 identified rattan collectors.

Detailed village actor interview

Detailed village actor interviews included more in-depth questions about how actors conduct rattan activities. Questions were focussed around rationale for rattan activities and for doing them with specific actors that they mentioned in the network interviews. These interviews took about one hour in most cases, depending on the interest and time constraints of the respondent. Respondents were selected subjectively based on my suspicion that they would reveal interesting responses and provide insights beyond that which I already had. Therefore, I selected respondents from different rattan collection crews and who sold to different 'bosses' (buyers).

Institutional actor and non-actor interview

I included companies, government departments, and trade associations as institutional actors. My aim in interviewing them was to better understand how they engage in the rattan business, what their business strategies are, with whom they do business, what the challenges are to doing business, and to a limited extent, of what their social network is comprised with regard to rattan business. I identified respondents through snowball sampling in which I asked respondents with whom they traded or contracted to conduct their rattan business. In larger centres where I

wanted to interview a more diverse range of actors, I used a combination of random selection and convenience sampling to ensure a wider range of actors than what snowball sampling would provide.

I chose to follow the GPN to the UK, which was among the top 10 importers of rattan furniture (Hirschberger 2011). Further, the UK was the only EU country showing a positive trend toward the export of rattan canes prior to the ban of exports in Indonesia (Hirschberger 2011).

I sampled Sri Lanka out of convenience since it presented an opportunity to explore a country with rattan inventory that prior to the Indonesian ban did not have a very large export market. I wanted to see whether or not that had changed. For similar reasons, I had wanted to explore Myanmar, but my visa was rejected at the border, which prevented me from exploring that country.

I conducted interviews in China because it was responsible for most rattan cane imports in 2011. I wanted to see how these companies responded to losing access to their biggest material supplier. Given that China is the largest furniture supplier in the world (Yang et al. 2012), I suspected that prior rattan manufacturers had moved to other types of production, especially synthetic rattan.

Table 3-6 details how many interviews were conducted for each type of institutional actor in each location. The number of relevant institutions is bracketed to provide an idea of population where possible.

I am aware that interesting rattan industry changes are afoot in Viet Nam, Cambodia, Myanmar, and the Philippines, but had to limit my study due to time and budget constraints.

Table 3-6: Summary of institutional interviews by type of actor and location.

Location	Company	Trade Association	Government Department	NGO/ Research
Belia, Sulawesi	3 (3)	-	1 (1)	-
Palu, Sulawesi	6[22]	2 (2)	3 (3)	4
Jakarta / Other Indonesia	-	2 (2)	4 (4)	2
Cirebon, Java	23	2 (2)	1 (1)	-
Surabaya, Java	3	-	-	-
Pontianak, Kalimantan	1	-	-	-
UK (Manchester / Cambridgeshire)	4	-	-	-
Sri Lanka (Colombo)	4	-	-	-
China (Huang Qi)	6	-	-	-
Total	***50***	***6***	***9***	***6***

3.3.3 Group interview

To complement the semi-structured interviews, I held a group interview in Utani with rattan collectors and ex-collectors. Forty-two men attended the 90-minute group interview. This group was bigger than planned, but involved nearly all the rattan collectors as well as some ex-collectors. I am unsure whether the participants were attracted by the dinner we planned after the interview was complete, or by the chance to talk about their activities. Either way, there was a high level of engagement by a wide range of participants. Discussions were held on the topics of historical trends in rattan collection, current challenges, social networks and rationale for choices of buyers. The format was participatory and included activities such as tying a string to the other collectors with whom each participant collected rattan most often to build social network data, as seen in Image 3-1. All rattan collectors were invited to attend by the Village Head and the session was held on a Sunday afternoon, during which time rattan collectors are usually in the village. An outline of the group interview process and questions is in Appendix B.

22. *Four processors of eight total. Three are part of the case value chain. Two manufacturers/ retailers.*

Image 3-1: Group interview network exercise

Source: Author

3.3.4 Document collection

I obtained documents from research literature, government bodies and industry associations. Table 3-7 details the types of documents collected along with the purpose and source for each type of document.

Table 3-7: Documents collected by type, use and source

Document Type	Purpose	Source
International trade data	Understand export markets	UNcomtrade
Indonesian trade data	Understand export markets	Central Statistic Bureau (BPS) (Jakarta); Department of Trade and Industry (Cirebon, Palu); Ministry of Trade (Jakarta)
Indonesian trade laws	Understand policy environment for rattan	National Law Library (Jakarta); Ministry of Forestry Library (Jakarta); Internet; Industry associations.
Indonesian domestic shipping data	Understand domestic movement and species of rattan	SUCOFINDO (Jakarta, Palu, Cirebon)
Corporate documents	Confirm trade values and historical changes in orders	Companies
Media articles	Understand opinions about trade policy and market trends	Multiple media outlets sourced online
Research literature	Understand historical aspects of rattan trade and other aspects of the GPN that are outside the scope of my fieldwork	Internet

3.3.5 Informal interviews and direct observation

I spent a significant amount of time with key actors gaining the trust of actors at village, government, company, and association levels. I did this by engaging with actors in any ways that I could and demonstrating the relevance of the research to what they are doing. For the most part, I felt that actors were pleased that someone was interested in rattan, and that a foreigner could speak their language. I focussed on the two national furniture associations, two key processors in Palu, a few factory owners, and some key families and individuals for rattan collection.

The experiences with each actor differed. In the village, nights are spent in casual conversation, usually in family groups or groups of men. There was lots of opportunity to simply build relationships with rattan collectors. I stayed in the village for about a week at a time, and then followed up on other parts of the GPN for a week or two, then returned to the village. I preferred this to staying in the village continuously as it allowed more time to pass over the whole span of my time in the village, allowed interactions downstream in the GPN that produced data that I could interactively query in the village, and yet allowed time for informal relationship-building. I continued to keep in touch with some people in the village who 'missed call' me whenever they have cellular signal every month or so. This included the Village Head. I kept in regular communication with the main rattan processor in Palu, who also has factories in Makassar and Surabaya and we met whenever we could in those locations or in Jakarta.

I used direct observation to understand issues of materiality and to contextualise data collected through other methods. Despite biases, direct observation, informed by theory, was useful to understand relationships and especially issues of materiality that were challenging to include other methods of data collection. Opportunity for direct observation resulted from the development of relationships with respondents, leading to listening to conversations, noticing comments, and seeing the way that rattan was physically transformed in space and physical composition as it was upgraded. Generalisability of observed data was strengthened by triangulating with other empirical data (cf. Denzin 1970; Jick 1979) and by observing enough depth at

each level of production that a coherent story emerged (cf. Gray 2004). I was able to observe the sale of rattan, for example, and triangulate those data with interviews from both parties involved in the transaction.

3.3.6 Structured online survey

Two structured on-line surveys were delivered within this research. They are described in the following sub-sections.

Online rattan market survey

Part way through my research, I became aware that recent policy changes in Indonesia had implications on actors in other countries, especially manufacturers, importers and retailers. I developed a web-based survey to collect data on this issue and base my analysis on a broader range of stakeholders than I could interview directly. Since the target respondents were companies that imported and exported, I did not perceive internet access to be a major barrier, recognising that smaller companies trading domestically or through an intermediary importer-exporter could be excluded. I weighed this weakness of the method against obtaining a broad range of responses from several countries and decided in favour of an on-line survey. I focussed on the 10 largest importing countries of rattan cane and exporters of furniture prior to 2012 when the Indonesian policies changed. I derived the base list of countries from a global study of the rattan industry conducted by Hirschberger (2011). The survey was open to any rattan material or furniture producing or trading company from any country.

I contacted companies directly through contacts I had identified in my research (including social networks of people interviewed), Alibaba,[23] LinkedIn,[24] and limited internet searching. Respondents were invited to recommend the survey to others, and mention their most important institutional contacts, in which case invitations to participate in the survey were snow-balled through an automatic script in the survey and sent to mentioned contacts.

23. A trade portal - http://alibaba.com

24. A professional social networking site - http://linkedin.com

The survey was designed and implemented using Survey Gizmo.[25] I followed Sue and Ritter (2007) in terms of guidance for survey set-up and follow-up. I also fashioned an anonymous feedback mechanism that was included in all e-mail communication so that institutional actors could easily provide me anonymous feedback rather than e-mail. I invited 564 companies to participate in the survey. Of those, 164 were failed e-mail addresses, leaving 400 invitations that reached rattan companies. There were 55 partial and 19 complete responses to the survey (4.75 per cent completed surveys). Figure 3-2 and Figure 3-3 below show the countries and actor types of respondents. Over 68 percent of the respondents were from Indoensia, which makes sense due to the number of companies in the country and the fact that many of them were already aware of the research. They are also more dependent on rattan that retailers in other countries who tend to have rattan as one of many product lines. Despite availability of the survey in Chinese, there were no responses to the 82 invitations that I sent out.

25. http://www.surveygizmo.com

Figure 3-2: Countries of rattan market survey respondents (n=19)

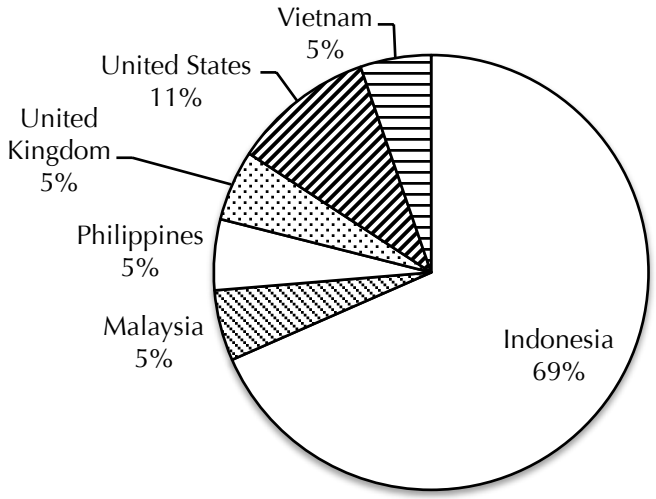
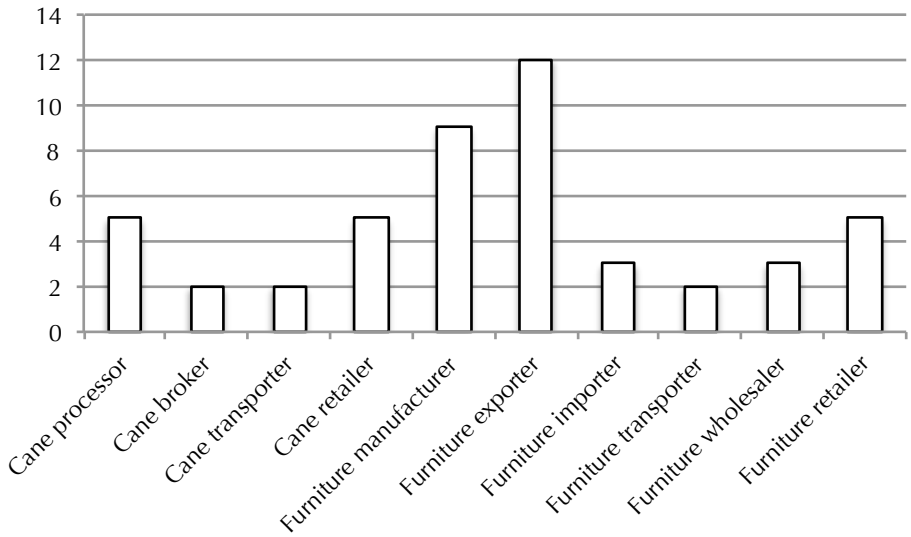


Figure 3-3: Types of rattan market survey respondents (n=19)



The survey (see Appendix E for details) covered changes in the rattan industry, challenges to companies, and company vital signs such as production volume and value and number of employees. I use this data in Chapters 7 and 8. The response rate and sampling methods makes the survey data non-representative, but I use it in my analysis as it has some indicative purpose.

Online furniture fair survey

Based on the responses to the first survey, I wanted to attempt to obtain better feedback from non-Indonesian actors. I positioned a second survey as a partnership in which a national furniture association (ASMINDO) could obtain data about their markets and participant opinions about an annual furniture fair (International Furniture and Craft Fair Indonesia- IFFINA).[26] Therefore, the second survey respondents were both natural rattan and other furniture traders. The survey was built in Survey Gizmo like the first survey. The questions are shown in Appendix G. ASMINDO, the IFFINA organiser, provided access to their mailing list of 10,535 records. After cleaning the records and eliminating invalid e-mail addresses and duplicates, we (together with ASMINDO) launched the survey to 9767 furniture actors (8936 were marked as buyers by ASMINDO). The survey asked respondents to provide information about:

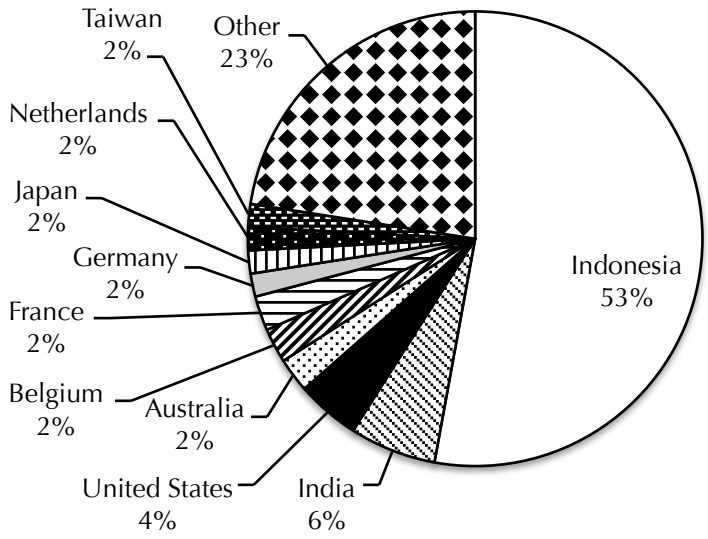
- Evaluation of IFFINA 2014
- Expectations of IFFINA 2015
- Products traded by company
- Level of trading with Indonesia
- Rattan markets
- Company trading history

Respondents were informed that their responses were provided anonymously to ASMINDO to improve IFFINA 2015 and to provide ASMINDO and me with market information. I improved the survey design over the first survey by asking any financial or sensitive questions later in the survey. Two hundred and forty-four respondents started the survey and 116 furniture industry actors completed it (1.1 per cent completed surveys). In the first survey, almost 70 per cent of the respondents were Indonesian and I suspect that I had met many of them, which might have increased the response rate. The second survey included 32 natural rattan buyers

26. I extended the offer to the two major furniture associations in Indonesia, but only ASMINDO wanted to advance the survey. There are sensitivities among the two associations and therefore co-operation between both of them on the survey proved not possible.

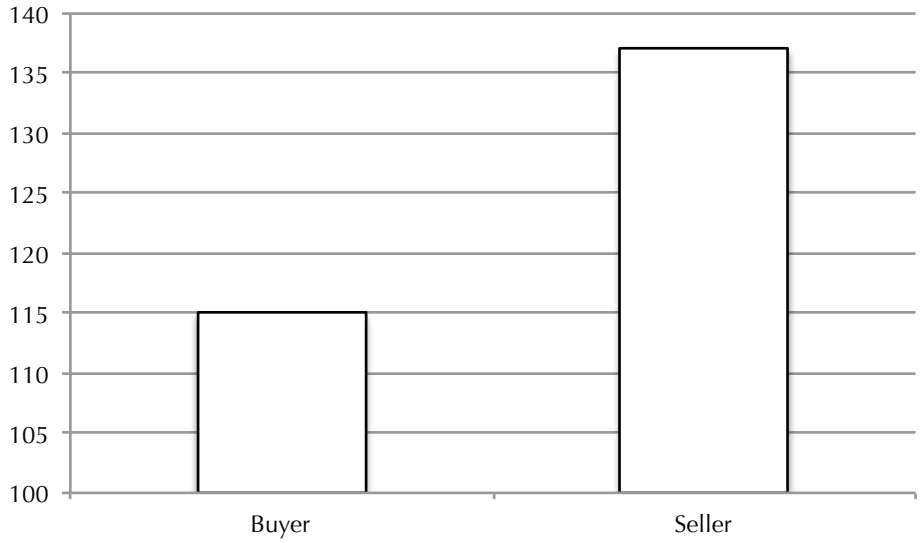
and 23 natural rattan sellers, with just over half from Indonesia. Figure 3-4 and Figure 3-5 show some overall demographics of the survey responses, which were made throughout September, 2014.

Figure 3-4: Countries of IFFINA survey respondents (n=244)



(n=244)

Figure 3-5: Types of IFFINA survey respondents (n=244[27])



27. Respondents were permitted to identity as both buyer and seller, so the total is 252 whereas n=244

3.4 Methods for data analysis

In this section, I describe each method of data analysis that I used during the research. The over-riding data analysis method that I use is access analysis, which uses a value or commodity chain analysis for the purpose of understanding access. Access analysis comprises four steps (Ribot 1998, 2005). First, identifying the actors within the GPN. Second, evaluating income and profit at each level of the chain. Third, evaluating the distribution of income and profit within each group along the chain. This presents the skeleton of the structure within which actors and access will be analysed. The last step is one of mapping the mechanisms by which access to benefits is gained, maintained and controlled. I expand these concepts to include external governance (policies) and materiality in the access analysis.

Access analysis, as described by Ribot, details a process, or meta-method. Several methods are required to address the complex qualitative and quantitative data necessary to complete an access analysis. I list the methods I used here.

3.4.1 Value chain analysis

Value chain analysis (VCA)[28] involves exploring "the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use" (Kaplinsky & Morris 2001, p.4). I used interviews and document analysis leading to the identification of phases of production (cf. Gereffi et al. 2001; Kaplinsky & Morris 2001). This analysis is an empirical examination of power that seeks to understand the hierarchies of production and transactions among hierarchies (Bernstein & Amin as found in Ribot 2005). At the same time, VCA is "a strong qualitative diagnostic tool that is capable, if employed skilfully, of identifying critical issues and blockages for specific target groups" (Coles & Mitchell 2011).

28. Although I could reframe this as GPN analysis, VCA is already a recognised, if inexact, method of analysis. I continue to use it whilst GPN analysis is certainly nascent among production network researchers and practitioners. Arguably, the combinations of my methods could comprise a GPN analysis, but I stop short of making such a claim here in recognition that GPN analysis could take many forms.

VCA involves mapping the groupings of actors by function and valuing their participation in terms of profits and costs. The map shows an aggregated format that can be used to understand which actors are engaged in what functions. Within access analysis, I also used VCA to understand what groups are benefiting by how much at each phase of production by examining the empirical financial transactions through upgrading and the distribution of profit among and within phases. I researched sales and costs associated with each upgrading movement in the GPN. Interview data indicates which actors are extracting what benefits within their phase of production.

3.4.2 Qualitative data analysis

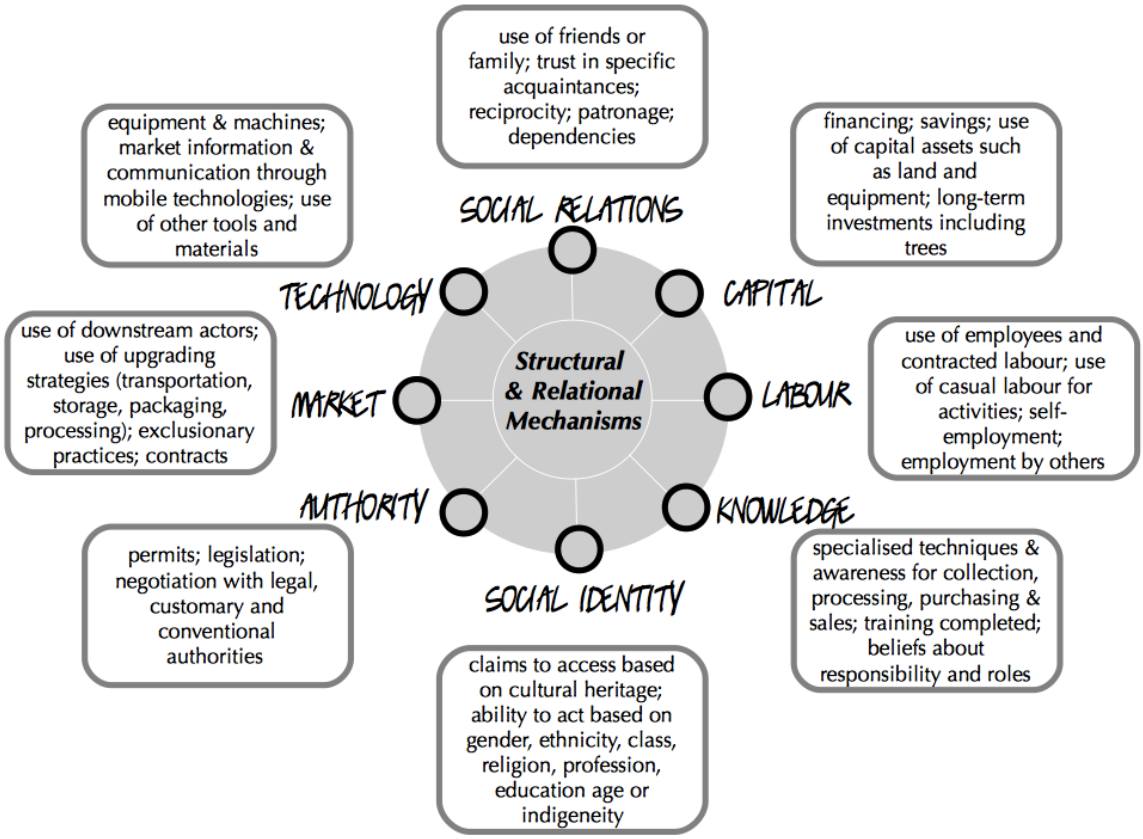
I used qualitative data analysis (QDA) to triangulate[29] results from other analysis methods, to provide context to other data sets, and to notice patterns from qualitative data itself (cf. Denzin 1970; Edwards 2010; Hollstein 2011). Qualitative data were analysed to contextualise the story of how rattan moved through the GPN and to discover what issues of access and exclusion were evident in the data. I coded the data in NVIVO[30] to assist in noticing patterns through descriptive coding (cf. Saldaña 2009).

Before my data collection, I developed an empirical data strategy that specified how key indicators would be collected. I used these indicators as a set of preliminary codes to analyse data (a non-exhaustive list can be found in the data collection checklist in Appendix C). Specifically, I sought indicators on materiality using the concepts described in Sub-section 2.2.3 and mechanisms of access as seen in Figure 3-6.

29. I use "triangulation" in the sense that I use multiple methods and questions to understand a phenomenon (Ezberger & Kelle 2003; Hammersley 2008).

30. QSR International (2014)

Figure 3-6: Exemplar indicators used in QDA for mechanisms of access



Based on Ribot and Peluso 2003

I modified this provisional set of codes as driven by the data. The resulting coding tree is shown in Appendix J.

3.4.3 Social network analysis

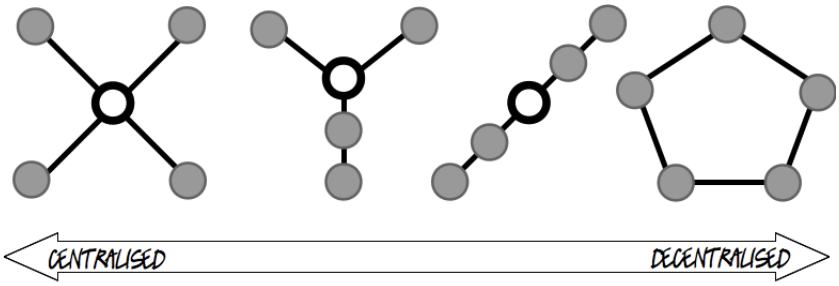
Social network analysis proved useful at the village level to understand how various actors were connected to one another. I compiled data in spreadsheets and imported them into Gephi 0.8.2, software specifically designed for analysing networks. I detail the methods that I used to analyse these sets here. I used two main network features for analysis: centrality and structure.

Centrality

Centrality is related to the number and characteristics of ties that a network actor has with other actors (Scott 2000). The primary concern in centrality is the number of relationships an actors has compared with other actors in the network. In other words, if in one network each actor has five relationships and in another each actor has 1000, no actors in either network will have high centrality because all the actors

in each network have an equal number of relationships. Figure 3-7 illustrates the most central actor in four simple networks with a white circle and shows how centrality is relative to other actors in the network.

Figure 3-7: Centralised and decentralised networks



Adapted from Borgatti et al 2009

I use degree centrality in this study. Degree centrality is the simplest concept in that it is a function of the number of ties with other actors. Degree centrality can be further broken down into in-degree (number of times targeted by other actors) and out-degree (number of targets that an actor has) centrality (Faust & Wasserman 1994).

I also use eigenvector centrality, which is concerned not only with the number of relationships that an actor has, but also the quality of those relationships and relative strength of the actors to which the actors is tied (Bonacich 1972). This type of centrality takes into better account the quality of the relationships among actors in the sense that it accommodates relationships with actors that are connected to other actors and is therefore a better reflection of power than other forms of centrality. The measurement of centrality is therefore compounded depending on the centrality of other actors with which an actor is connected (Hanneman & Riddle 2005). For this reason, I focus on eigenvector centrality but make reference to other types to understand network positions and the concept of cluster density.

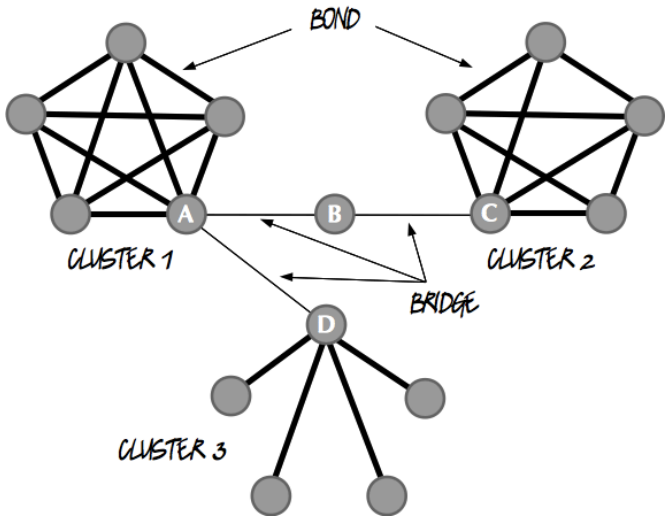
Structure

The structure of a network is a result of the positionality of actors in relation to one another. Position is, at its simplest, to which other actors Actor A is connected (Burt 1976). "The concept 'position' is important for two reasons: (a) it helps simplify the analysis of otherwise more complex networks, and (b) it has been demonstrated to be an important determinant of behavior in exchange networks" (Cook et al. 1983,

p.279). When actors share the same types of relationships with the same other actors, they have a position of structural equivalence in a network, which allows a researcher to make assumptions about their function in the network (Burt 1976). Structurally equivalent actors share the same levels of centrality (Borgatti & Everett 1992).

Connected actors assemble, or are assembled in patterns. These patterns can be understood in terms of clusters, formed of actors with close connections and far connections. Cluster density is a pattern of positionality that is higher when multiple actors have increased closeness (Scott 2000). They appear more dense when the network is visualised. Density is concerned with extent to which actors are central in relation to one another. Actors with several relationships to similar other actors will form a dense cluster within the network. Clusters feature primarily bonding relationships, or those that keep actors close together, and are connected by bridging relationships that bridge clusters together. Figure 3-8 shows these network features. Cluster 1 and 2 are bridged by relationships between Actor A to Actor B and Actor B to Actor C. Cluster three is bridged by a relationship between Actor A and Actor D. In this example, Actor B is not in a cluster, but is central to the bridge between Clusters 1 and 2. Also in Figure 3-8, the clusters are of varying densities with Cluster 1 being the most dense and Cluster 3 being the least dense— also known as most sparse (Borgatti & Li 2009). Cluster density can be measured using any of the aforementioned centrality concepts.

Figure 3-8: Bonds, bridges and clusters



When clusters are connected with one another through a weaker or more distant relationship, a bridge is seen in the network. The bridge enables two clusters to connect to one another. Social network theorists argue that these bridging relationships, sometimes known as weak relationships, are more important in terms of enabling actors to access new information and resources than bonding, or strong, ties (Granovetter 1973, 1982).

Bonds, bridges and clusters contribute to the overall network patterns that are useful for analyses of positionality in networks. They determine the network structure, when combined with attributes of actors, form the basis for understanding positionality in the network.

In Section 3.7, I explore some of the limitations that I experienced in using SNA. In short, I used it less than I had planned because of these limitations and found it more useful to focus on data collection that revealed more qualitative data from fewer actors than to conduct a full analysis of the trade network.

3.4.4 Descriptive statistics

I used simple descriptive statistics to exact research findings from the household census data, online survey data, and global rattan trade data. First, for the household data, I examined univariate and bivariate datasets to describe the condition of the villages in the study and explore some of the relationships between key variables. I also used descriptive statistics to analyse wealth. Wealth was calculated for village actors at the household level using the results of the household survey and village

records. Indicators of wealth were divided into categories and a scoring protocol was determined. Each category was scored using a frequency measure or normative value attribution approach that was then used for frequency calculation (Decancq & Lugo 2013), depending on the nature of the attribute. Normative values were assigned by the rough proportional costs of the supply and installation of the material. Each category was then weighted based on normative values. Appendix H outlines the treatment of each attribute and calculation of the weight rating for each household. While the household census data are representative of the specific villages from which the data were collected, they cannot be generalised.

Second, for online survey data, I analysed survey results and explore correlations among responses to better understand what types of companies tend to have what experiences or perspectives around the rattan trade. Online survey data do not comprise a representative sample either as the selection biases were too great and the sample size too small. Nevertheless, these data are useful when analysed using simple descriptive techniques and in complementarity with qualitative data. I often used ranking questions, which I aggregated by scoring the weight. This means that if five items are ranked, the top ranked item will receive a score of five, the second will have a score of four and so on.

Finally, I identified patterns in rattan trade data and compared them with policy decisions by the Indonesian government to understand the outcomes of policy decisions. I examined policies against trade changes using data sourced from UNcomtrade (United Nations Commercial Trade Statistics Database). I use trade data analysis to support my analysis of rattan trade policy and find patterns in the data (cf. Beach & Pedersen 2013). Trade data were extracted from the Ministry of Trade of the Government of Indonesia and through official trade records submitted to the *Badan Pusat Statistik (*BPS) (Central Statistics Agency) and UNcomtrade. While I recognise and acknowledge the shortcomings of international trade data (Yeats 2011), UNcomtrade is the most comprehensive dataset for the international trade of

rattan and rattan furniture. I cross-referenced BPS data with UNcomtrade export data and found them to be consistent. I use BPS data for more granular Indonesian export data and UNcomtrade for international comparisons and import data.

Table 3-8, below summarises the data analysis methods that I use for each research question and shows how I use each analysis as part of this study.

Table 3-8: Data analysis methods implemented for research questions

main question	How do GPN actors (not) benefit from rattan originating in and near Lore Lindu National Park, Indonesia?						
	1	**2**	**3**	**4**	**5**	**6**	**7**
sub-questions	What actors are involved in the rattan GPN?	What relationships exist among actors?	How do different actors leverage and negotiate mechanisms to gain, maintain and control access to rattan?	How is access to rattan at one phase of the GPN connected to access at another phase?	What benefits do actors derive from access to rattan?	How do the materiality of rattan and actor access to rattan affect one another?	How does government policy on trade restrictions and the national park affect actors in different phases of production?
analysis methods	VCA	VCA; QDA; SNA	VCA; QDA	VCA; QDA	QDA; DST	QDA	DST; QDA
how data are used	Analyse what individual actors are (and are not) involved in GPN; understand function to develop actor grouping.	Analyse actors and relationships to understand relationships that exist. Look for clusters and brokers.	Analyse strategies used to gain, maintain and control access among actors.	Analyse change and attributed casual links among actors as classified at different phases of production.	Analyse price and cost information by each phase, including distribution within the phase.	Analyse material characteristics of rattan (scarcity, quality, value) against which actors have access and access control over the resource and which actors benefit.	Link policy implementations to trends in trade data, especially among countries, and to comments by actors. Use qualitative data on park policy to understand how access is affected.
outputs	List of GPN actors, including basic demographic data and self-identified function; GPN phases of production identified.	Description of relationships that shows what actors each of the actors relates to in order to gain access to rattan. Patterns analysed.	Analysis of mechanisms used by different groups of actors.	Analysis of relations between phases, with careful attention to what influences gaining, maintaining and controlling access. Similarities and differences analysed.	Financial distribution of benefits and costs by phase of production and actors within phase. Similarities and differences analysed.	Diagnostic of access and benefit by aspects of materiality.	Analysis of changes in levels of trade over time linked with policy changes and qualitative discourse around policy changes.
Thesis section	Section 4.6	Section 4.6	---------- Chapters 5 to 8 ----------				

VCA= Value Chain Analysis; QDA= Qualitative Data Analysis; SNA= Social Network Analysis; DST= Descriptive statistics

3.5 Ethical considerations

I followed the UEA Faculty of Social Science ethical policy.[31] This meant consideration of risks to, and protection of, research respondents. In practice, these considerations required informed consent, the option to withdraw statements, and in most cases, anonymity, especially for those engaged in illicit activities. Not only do I conceal the individual identities of respondents, but also the names of any jurisdiction with less than 100,000 residents. Companies and representatives were given the option of anonymity, many of which elected for it. Practically, I only use company names in this study if permission was granted and the company identification enriches the analysis. Informed consent was most commonly obtained orally and recorded when possible if agreed to by the respondent. Data were protected using encrypted electronic media and anonymised coding in hard copies before being scanned or imported and then encrypted or destroyed.

I also offered reciprocity to respondents so that the immediate results of my research were less extractive in the short-term. This reciprocity took the forms of:

1. An event for the children in Utani, paid for by a local NGO, featuring games, books and learning experiences for children in the village.
2. After school learning for the school children in Utani, led by my wife, a certified teacher in Indonesia.
3. A dinner party for the rattan collectors in Utani.
4. Taught two classes at UNTAD, the sponsoring university in Palu: one in project management and one in political ecology.
5. A two-page document on where rattan comes from for furniture factories and retailers to share with their clients (developed on request from industry actors). Was sent to industry actors.
6. Contribution to the rattan furniture industry trade magazine on the journey of rattan before it arrives at the factory (developed on request from industry actors) and published in 2014.
7. A market trend analysis for institutional actors featuring summarised results from the online surveys and market trends from secondary data.
8. Survey responses shared with ASMINDO in anonymous form.

31. See http://www.uea.ac.uk/ssf/ethics for details.

9. Data cleaning for ASMINDO: provided cleaned mailing lists to ASMINDO with reports on expired e-mail addresses, duplicate omission, and 515 fixed e-mail addresses that were previously invalid e-mail address formats.
10. Provided copies of published article in Forest Policy and Economics to industry actors, including a translated version (in accordance with Journal copyright).
11. Research dissemination events offered to AMKRI and ASMINDO (industry associations) in 2015.
12. Reported back to Utani villagers in December, 2015.

3.6 Changes in approach

My final methods and research approach changed from the original empirical data collection plan. Here, I describe briefly some of the most salient changes that I made. The first major change was that my original intent was to study two natural resources and map both GPNs to understand access at each phase of production and compare how the materiality of the resource might have influenced actors to make different decisions. I had identified rattan and gaharu, a highly valued result of an infected endangered tree. Two factors influenced my drive away from this. The first was that the politics of rattan became more complex than I had anticipated and the impact of an export ban would reveal interesting findings for access and bring my research to a more international level than I had anticipated. The second was that gaharu trade and harvesting is illegal and while I was able to obtain information about it in the village, moving up the GPN I found that actors were shrouded in secrecy. As a result, both GPNs were much more complex and time consuming than I anticipated and I had to make a choice. I chose rattan because that was the more important product in the village in which I started the research and there were pressing and engaging issues in both the village and international fora.

Related to the rattan ban, the research required an enquiry into policy that I had not anticipated. I spend a good portion of this thesis examining the factors leading up to, and the effects of, a 2011 ban on the export of un- and semi-processed rattan. This required integration of policy as a meditating factor in my conceptual framework and more interviews with policy makers than I had anticipated. To examine this, I used an international trade dataset that I had not planned on using at the beginning,

requiring a totally different set of methods of analysis. The attention that I gave to this issue required less time spent in the village than I had planned and therefore fewer in-depth interviews than I had originally conceived.

My original data collection plan did not include an online survey as I expected to be able to have interviews with some actors in Europe. The importance of the international trade network motivated me to develop the online survey to capture a broader perspective than just the specific part of the GPN that I was following and helped to contextualise some of the international trade data. The first survey had too few responses, so I devised a second survey, this time aligned with a furniture association, to get a broader appeal and a better contact list.

I had already developed and tested a number of data collection instruments based on my initial scoping trip. I adjusted them where they were problematic. One of the adjustments was to make them less structured, which worked well. I had developed a diagram to assist in understanding the dependency of actors on other actors, and the roles that other actors played. The distinction between the person and role proved cumbersome in the interviews and so I only have scattered results on that and decided that it was not as important as I had originally thought. The decision to reduce the social network part of the data collection was also related to the next point.

Finally, I found that in order to do all of this analysis along all the phases of production, I had to decide whether to focus at the whole GPN or the village. I chose the former because of the interesting dynamics happening there and I felt I could get enough data on village access dynamics in a shorter length of time than I thought. I relied less on my dependency perspectives at the village level and moved that thinking across the GPN all the way to the international level.

3.7 Challenges and limitations

Significant method challenges and limitations were as follows:

1. **Time efficiency in Utani**: Time in Utani was at a premium due to the practice of women and men going to their field from 9:00 AM to 4:00 PM from Monday to Friday and 9:00 AM to 1:00 PM on Saturdays. This made data collection in the daytime difficult. I managed this by spending most of my time in the village over a weekend, so that at least two of the days were more productive. I also often did field interviews on the farms.

2. **Securing meetings in Europe:** Indonesian meetings were relatively easy to get, not only at the village level but also with companies with whom I had no time to develop relationships and bonds of trust. In Europe, the case was quite different. I contacted 14 rattan importers and retailers in the UK for interview and sent them a one-page research description in making a request to meet with them. Only two responded to the second e-mail I sent. This was part of the reason that I decided to build the online surveys so that the international perspective could be better captured.

3. **Social Network Analysis**: I experienced what is known as the 'boundary problem' (Smith 2014). This is to say that the boundaries of the network became fuzzier and fuzzier as the actors became more dispersed moving downstream in the GPN. I realised that I could not realistically include the whole GPN in my study. I therefore decided to focus on the specific part of the GPN whilst getting at the larger network where I could. This meant that SNA could only be done at the village level.

4. **Commodity focus:** Due to the focus on rattan only instead of rattan and gaharu, my study was turned into a single case study rather than a comparative case study. This meant that the ability to generalise and find contrast among the cases was lost. I weighed this against getting more in depth data related to the rattan trade ban and more broadly at international levels and evaluated that a single

case study, with better data at all levels would be more insightful to access than the comparative case study. This remains, however, a limitation to the strength of generalisations that I can make in the study.

5. **Materiality:** The ways I get at issues of materiality are through the social: both through interviews and through my own observation. Although I recognise the natural and the social worlds, the natural could only be interpreted through the social and therefore the extent to which I can really understand materiality is necessarily filtered. My approach to materiality was a direct one. By this I mean that I made specific enquiries around the material nature of rattan and the forest rather than an indirect approach that analyses discourse around the material world.

6. **Choice**: Some of the empirical findings of this study revolve around choice and alternatives. My findings show that alternatives to rattan are an important factor in the extent to which actors choose to continue to work with rattan or to become an actor in the rattan GPN. Due to limitations of time and scope, I am not able to address how such choices are made and under what conditions actors choose one alternative or another.

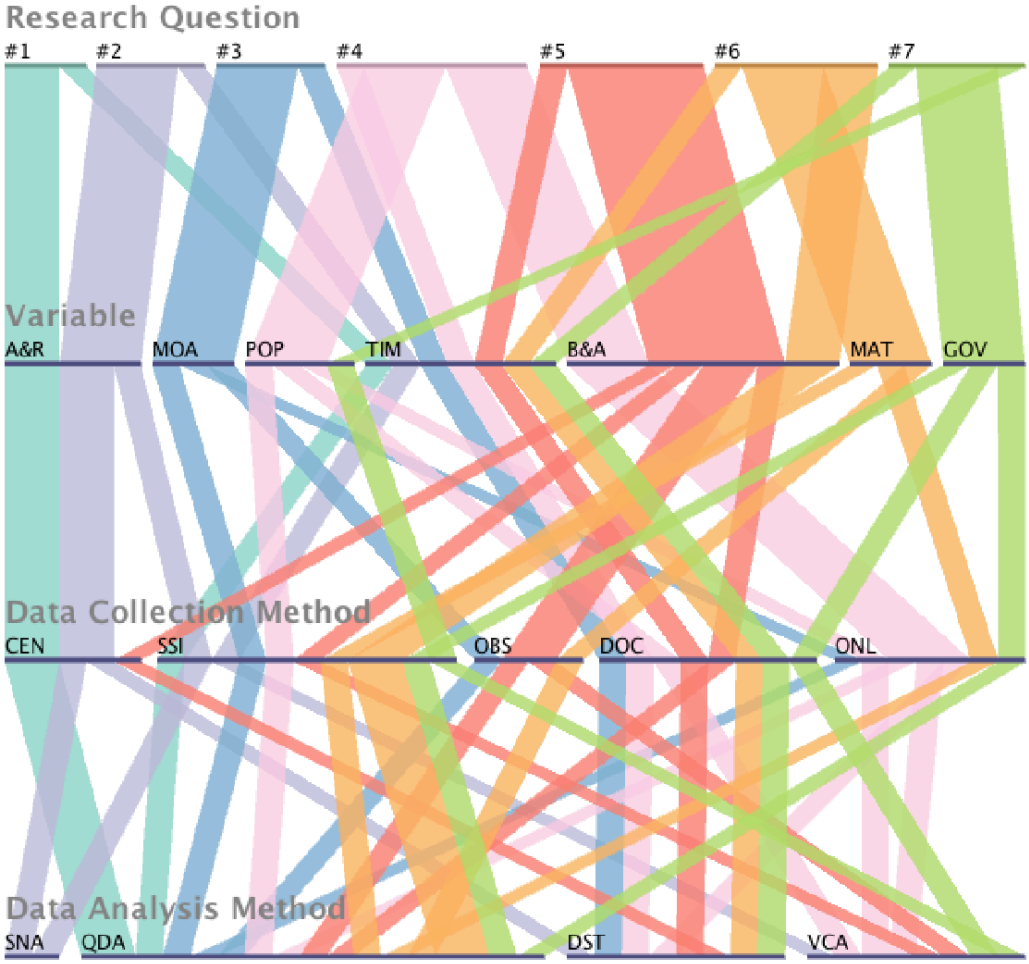
7. **Illicit transactions**: I was limited in my ability to directly interview actors about their illicit activities. Perhaps with more time I might have been able to speak directly with these actors, gained their trust for them to speak on such issues, or gain access to several of these actors, especially those involved in smuggling rattan out of Indonesia. I was able to discuss with many respondents about what 'other actors' do to smuggle rattan, but not any admissions of participation.

3.8 Summary

This chapter began by making my stance as a critical realist explicit. I took a mixed method approach to data collection and analysis methods and described the data collection and analysis methods that I used. I explained that different methods are used at different phases within the GPN and how the analysis will be used in the empirical chapters of this thesis. I showed methods of data collection as through structured and semi-structured interviews, document analysis, direct observation, and structured online surveys. Analysis of these data are also through a mix of methods including value chain analysis, qualitative data analysis, social network analysis, wealth ranking as well as basic descriptive statistics.

Figure 3-9 below summarises how the research questions, variables, data collection methods and data analysis methods fit together. The figure shows that several variables are included in most research questions and that multiple analysis and collection methods are used to understand each variable and therefore answer each research question. The colour of each ribbon corresponds to the research question at each dimension of the figure, so it is clear what research questions are being addressed by each variable and method. You can follow the coloured ribbon from the research question to see what variable and method I used to answer each question.

Figure 3-9: Summary of research questions, variables, data collection and data analysis methods



A&R= Actors and relationships; B&A= Benefits and access; GOV= Governance; MAT= Materiality; MOA= Mechanisms of access; POP= Phase of Production; TIM= Time;

CEN= Census; DOC= Document analysis; OBS= Observation and unstructured interviews; ONL= Online web survey; SSI= Semi-structured interview;

DST= Descriptive statistics; QDA= Qualitative data analysis; SNA= Social network analysis VCA= Value chain analysis.

(image produced using Kosara & Ziemkiewicz 2014)

4

Rattan and rattan trade

In order to establish the context for the rest of this study, in this chapter I explain what rattan is and the structure of the global production network (GPN). Starting by introducing the case in Section 4.1, I introduce the biogeophysical properties of rattan in Section 4.2, which highlight the materiality of rattan in the forest. I detail broad features of the rattan cane and rattan furniture industries, including some of the historical changes over time and trade restrictions in Sections 4.3 to 4.5. Finally, in Section 4.6, I provide an overview of the actor types and relationships among actor types within the global rattan production network. This chapter is therefore an empirical one, but is focussed on setting up subsequent chapters for analysis rather than revealing extensive analysis itself. By the end of the chapter, you will understand the critical aspects of the case so that subsequent analysis can be placed in context.

4.1 Case study

I described the case study selection rationale in Heading 3.2.1.1. Here, I describe the case in more detail to reveal some of the characteristics of the places within the rattan GPN. I start from the village and work outward.

4.1.1 Utani

Utani[32] is a village of 87 houses and almost 500 people surrounded by forest. Houses are concentrated in a small village area with two trails running perpendicular to one another. One can walk across the entire village in about three minutes. There are two small primary schools (one for class one to three and one for class four to six) with paid and volunteer teachers. There is a church as the majority of residents identify as protestants. Five or six houses have small shops in their front yards and sell basic food supplies, candies, cigarettes and gasoline. During the day, the village is void of activity while the children are in school and the adults tend to their fields where they grow rice and vegetables such as chilli peppers, corn, cucumber and pumpkin. Trees are also kept in the farm area. The main commercial crop is cacao and almost none of the other agricultural products are sold on the market. Farms range from a 10 to 60 minute walk from the village. A few families

32. Pseudonym

have pigs and many have chickens. Pigs are mandated by the Village Head to stay out of the central village area for hygiene purposes and chickens, cats and dogs run freely around the village. There are two fish ponds that are periodically stocked with tilapia and catfish by the owners but used by several villagers. Women and men collect firewood from the forest, and a few older people collect medicinal herbs. Wild boar is hunted in the forest. Men also collect rattan.

As in the rest of Indonesia, Utani has a democratically elected Village Head and an appointed Village Secretary. The Village Secretary is responsible for administrative issues related to registrations of births, deaths, marriages, and land acquisitions. The Village Head relates with the sub-district government on issues that affect the village. There is a parallel structure of *adat* (customary) leadership that handles issues of morality, retribution for crime, disputes, and traditional access to land. In practice, the Village Head works very closely with *adat* leadership.

Utani is accessible only by a trail from Belia[33] that leads on to Lore Lindu National Park (LLNP) and to the Eastern coast of Sulawesi. The travel takes two to three hours by motorbike, depending on the condition of the trail, and features make-shift bridges over the river made by the villagers themselves. Despite repeated requests for a more dependable road, Utani villagers are still highly dependent on the weather, which determines how much of the road is passable. The road is subject to frequent flooding, landslide and bridge collapse. The trail is passable by foot in as few as six hours and up to ten depending on the speed of the walker and the condition of the road.

Utani families claim ancestral land for as long as anyone in the village can remember. The village itself was relocated within the customary area controlled by Utani people about 60 years ago. Today there are no residents of the original location, which is now well within the borders of Lore Lindu National Park. Some Utani elders remember moving as very young children or stories from their parents about moving, citing more flat land suitable for paddy rice cultivation in the current

33. The trading town (Pseudonym)

Utani area. The new location is also considerably closer to Belia, and the "original village was far... several days from the nearest town" according to an elder (referring to walking).

Although cacao has become increasingly popular over the last decade, rattan is still a significant activity, especially for those who do not have sufficient land or resources to cultivate cacao, as shown in the next chapter. Rattan is tied to a customary use of forest and before cacao was the only commodity produced from Utani because of the poor road access that made the transportation of other goods unfeasible due to high transaction costs. Rattan is transported on the river, which allows access to markets. The forest under customary claim overlaps partially with Lore Lindu National Park, which restricts the legal activities that Utani people can conduct in that part of the forest by prohibiting or restricting rattan collection in the park.

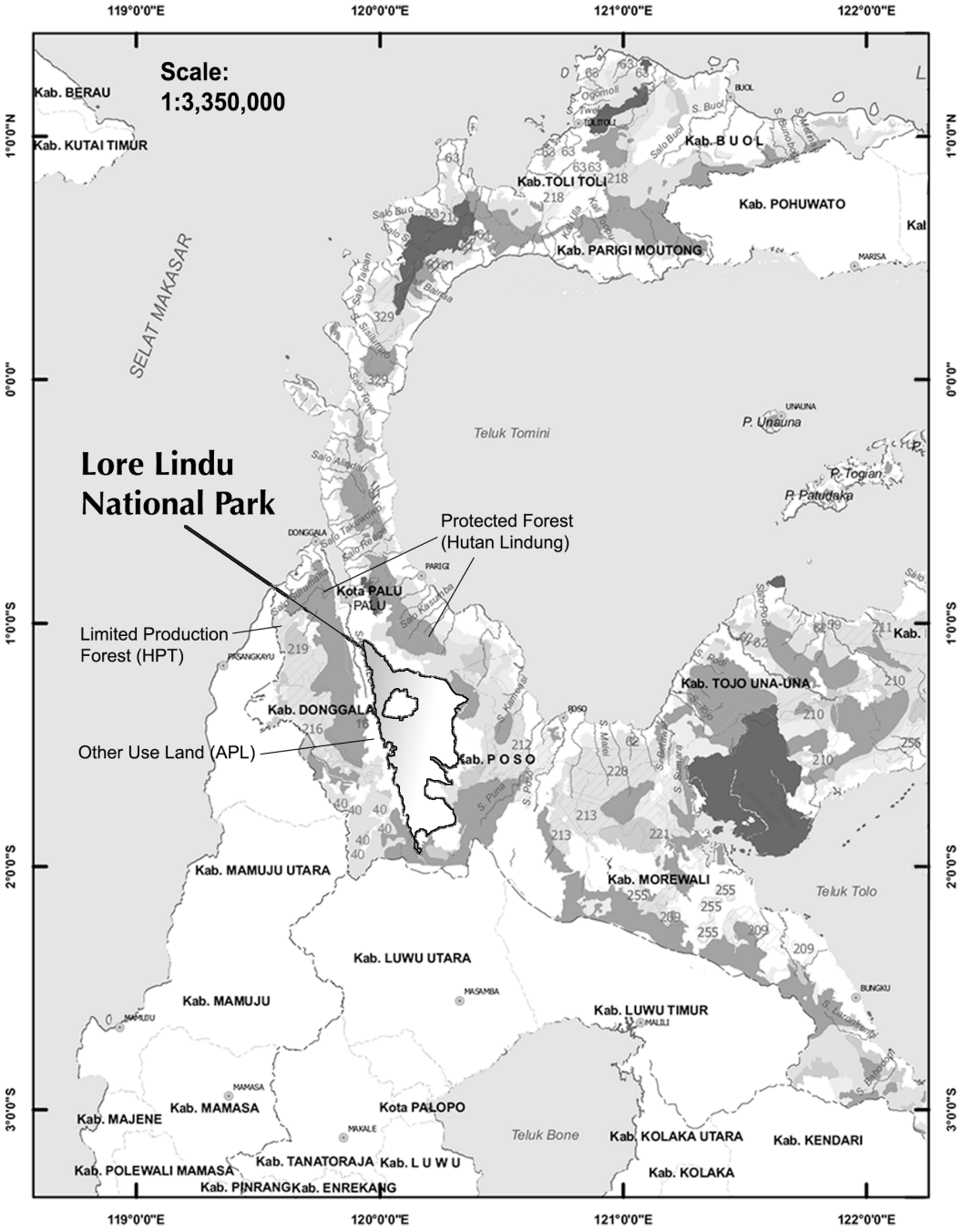
I also conducted household surveys in another village, Desa Dua, which serves as a comparison with Utani. Desa Dua is similar to Utani in terms of remoteness, but it is further from the national park, and has very little customary forestland remaining. Therefore, Desa Dua rattan collectors seek permission from Utani to collect rattan within Utani territory. This contrast is useful to understand authorities over forest land and how rattan collection networks differ between the villages.

4.1.2 Lore Lindu National Park

Lore Lindu National Park (shown in Figure 4-1) was designated by government as a national park in 1982 and established in 1993 under *Surat Keputusan Menteri Kehutanan No 593/Ktps-II/93* by joining three protected areas that were established between 1973 and 1981 (Birner & Mappatoba 2003). Its boundaries were then amended in 1999 to cover 217,991 ha of land in Central Sulawesi. It is a UNESCO World Heritage and Biosphere Reserve site (Departemen Kehutanan Republik Indonesia 2007). Lore Lindu touches the districts of Palolo, Sigi Biromaru, Lore Utara, Kulawi, and Lore Selatan. Of the 119 villages in these districts, 60 have administrative areas overlapping with the park (Maertens et al. 2002) and in 1999 approximately 130,000 inhabitants were located within the park and buffer zone boundaries (Faust et al. 2003). The park received 1785 national and 181 foreign

registered visitors in 2007, after recovering from negligible visitations for the previous five years in which there were regular conflicts over forest use (Departmen Kehutanan 2008).

Figure 4-1: Map of Lore Lindu National Park and Central Sulawesi

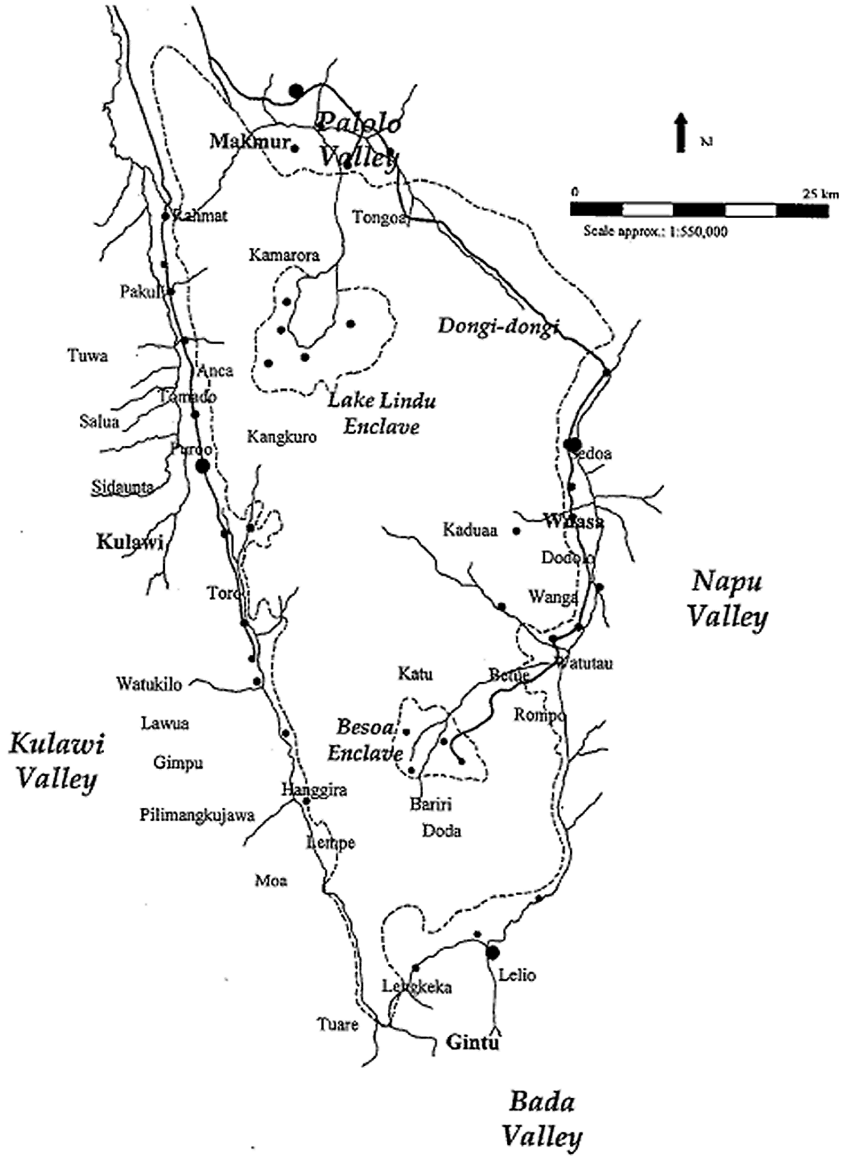


Adapted from the Ministry of Forestry (2011)

LLNP is one of two protected areas over 100,000 ha on the island of Sulawesi and one of 38 in Indonesia (Brickford et al. 2008). As a Category II protected area, human activity is prohibited except recreation and some cases of fishing and mineral

exploration (Brickford et al. 2008; Dudley 2009). Despite this, there are regular occurrences of various activities including human settlement, hunting, logging, gardening, rattan harvest, livestock rearing, and land clearing (Brickford et al. 2008). As Figure 4-2 shows, there are human establishments in and around the park.

Figure 4-2: Map of Lore Lindu National Park showing surrounding villages



(Image source: The Nature Conservancy Indonesia 2002)

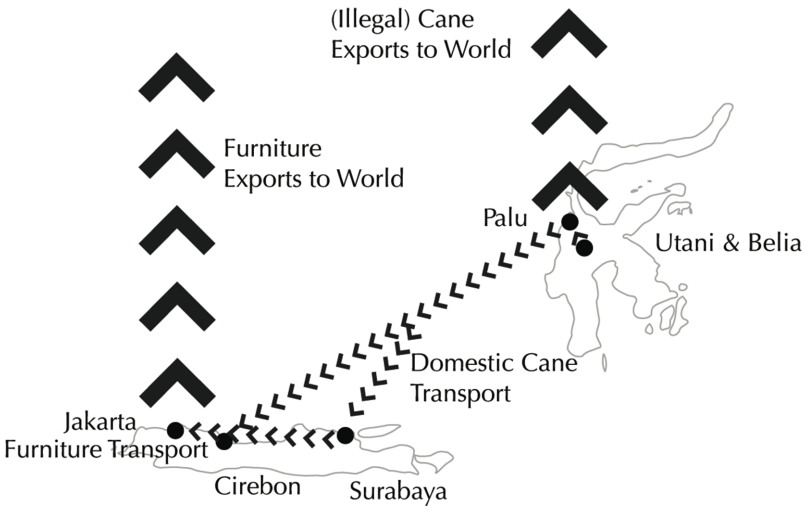
While many of these activities are related to lack of awareness of local residents and officials on boundaries and permissible activities (Mehring & Stoll-Kleemann 2011), some are also conducted with conscious illicit access based on a rejection of the authority of the State over customary forests, as made clear in interviews with villagers in Utani, many of whom echoed the words of the Village Head that "this is

our forest." Li (2007, 2008) outlines the ways in which residents defy local law as a demonstration of denial of government authority, much in the same way as the poor employ *weapons of the weak* more generally (Scott 1976, 1987).

4.1.3 Beyond Utani

Utani rattan is sold to intermediaries in Belia and then to Palu for processing. Palu, the provincial capital is about three hours from Belia by road and has a population of 356,279.[34] It is largely a trading and government administration city. After Palu, rattan is exported and shipped to an undetermined number of domestic and international actors. In Indonesia, the rattan furniture factories are mostly in Cirebon and Surabaya. International factories and retailers are myriad and explored more in Chapter 8, with most furniture exported from Java and rattan cane smuggled from outlying islands as well as Java. Figure 4-3 shows these locations and the paths of movement of rattan among them. Actor types are expanded upon later in this chapter and individual actors are included in analysis in Chapters 5, 6, 7 and 8.

Figure 4-3: Flow of rattan from Indonesian focus locations



34. According to official statistics based on the 2010 national census http://sulteng.bps.go.id/index.php/2014-08-07-09-51-08/kependudukan.html?layout=edit&id=843

4.2 Biogeophysical properties of rattan

In this section, I describe the biogeophysical properties of rattan and how it is used so that issues of materiality become more clear. I refer to *'rattan'* to mean several species. Although there are around 600 species of rattan in the world (Dransfield 2002; Uhl & Dransfield 1987), 50 are found in Indonesia. Central Sulawesi hosts six species of commercially traded large-diameter rattan used in furniture. The major species[35] traded before 2012 were *Calamus diepenhorstii* (Lambang), *Calamus inops* (Tohiti), *Calamus manan* (Manau), *Calamus omatus* (Seuti, kesup, Jelayan, Buku dalam, Lambang, Sega Badak), *Calamus scipionum* (Semambu, Tabu-tabu), and *Calamus zellingerii* (Batang, Air, Noko, Nuku, Pondos saisagan) (ITTO 2011). Rattan is overwhelmingly found in Southeast Asia, but there are three genera found exclusively in Africa as well as one species of *Calamus* (Siebert 2012), which is the genus from which all traded species in Sulawesi come. Rattan grows in a wide range of soils, with a high proportion being endemic to particular parts of the world (Siebert 2012). As a result of the high species diversity, different types of rattans grow in all major forest and soil types in the Old World tropics from sea level to 3000m and in a wide range of light and precipitation conditions (Siebert 2012). Different species of rattan can have a diameter as small as 2mm and as big as 10cm (Dransfield & Manokaran 1993). The vines can reach as long as 180m, but 100m is a normal maximum in Central Sulawesi (Siebert 2012). Some species of rattan are cultivated, most notably in Indonesia Sega in Kalimantan rattan gardens (Dransfield 2002; Meijaard et al. 2014; Peluso 1991).

As a climbing palm, rattans use cirri, or extensions of the leaves, as whips to hook onto adjacent flora, especially trees (Siebert 2012). Their outer skin is covered on thorns, as shown in Image 4-1. These thorns are hard and sharp, puncturing human skin with ease.

35. I note the local Indonesian names in brackets, which I will use to refer to specific species later in this document.

Image 4-1: Thorns of Calamus zollingeri b.

Source: Author

Rattan is highly abundant in Central Sulawesi (Siebert 2005). Two of the most common species are the focus of this case study: *Calamus zollingeri* and *Daemonorops robusta*. Although anatomically different, their growing conditions are similar and their cane indistinguishable from one another (Siebert 2005). Collectively, they are known in Indonesia as *batang*, a large diameter cane primarily used in furniture manufacturing.

Global inventories of rattan stock are on the decline; not for unsustainable harvest practices or over harvesting, but primarily due to the destruction of forest habitat (Hirschberger 2011). Although traditionally prized for its flexibility and tensile strength in the tropics for centuries to make baskets, matting, tool, fences, houses, binding, and as a food source (Dransfield & Manokaran 1993), rattan is under threat from changing land uses that involve the destruction of forests.

4.3 Global industry features of rattan

The term *rattan industry* is somewhat of a misnomer. Natural rattan has at least two, interconnected industries: cane and plaits (raw materials) and furniture and finished products. These industries are complicated by the introduction of synthetic rattan, which includes a collection of woven synthetic materials like polyethylene and polypropylene resin fibres. Rattan is used in applications ranging from the practical to the obscure. In Indonesia, most rattan is used for furniture, followed by baskets. Global trade data shows that in 2013, 69 per cent of rattan products imported were

furniture,[36] 30 per cent baskets, and two per cent mats. In Indonesia, 74 per cent of rattan exports were furniture and the rest in baskets and mats (UNcomtrade). Other products, such as walking canes and hula hoops are a steady but small market. Throughout history, rattan has been selected for its strength and light weight for various applications. One of the more creative applications includes the body of the 1897 French-made Hugot automobile (Matteucci 1976). Metal bodies were introduced three years later and took over the market (Schultz 1985). The seat of the Spirit of St. Louis was also created of rattan (Pisano & Van der Linden 2002). Fiat produced the rattan-seated 600 Jolly in limited production in 1958 (Tumminelli 2004). The creative uses for rattan don't stop in the distant past. In 2003, a masters student published a thesis on the potential for rattan motorcycle helmets to meet Thai crash safety requirements (cf. Kanchanapa 2003).

The most traded species is *sega (TSI)*, which is used for baskets and weaving and comprises 56 per cent of all inter-island trades in 2012 (SUCOFINDO 2013). *Batang* is the second most traded species of rattan comprising 29 per cent of total trade in Indonesia. Other species, all comprising five per cent or less of total trades, include *Lambang*, *Tohiti*, *Manao*, *Irit* and *Wilatung*. There were 28 species commercially traded in Indonesia in 2012 (SUCOFINDO 2013).

4.3.1 Scale of global rattan industry

Raw materials trade

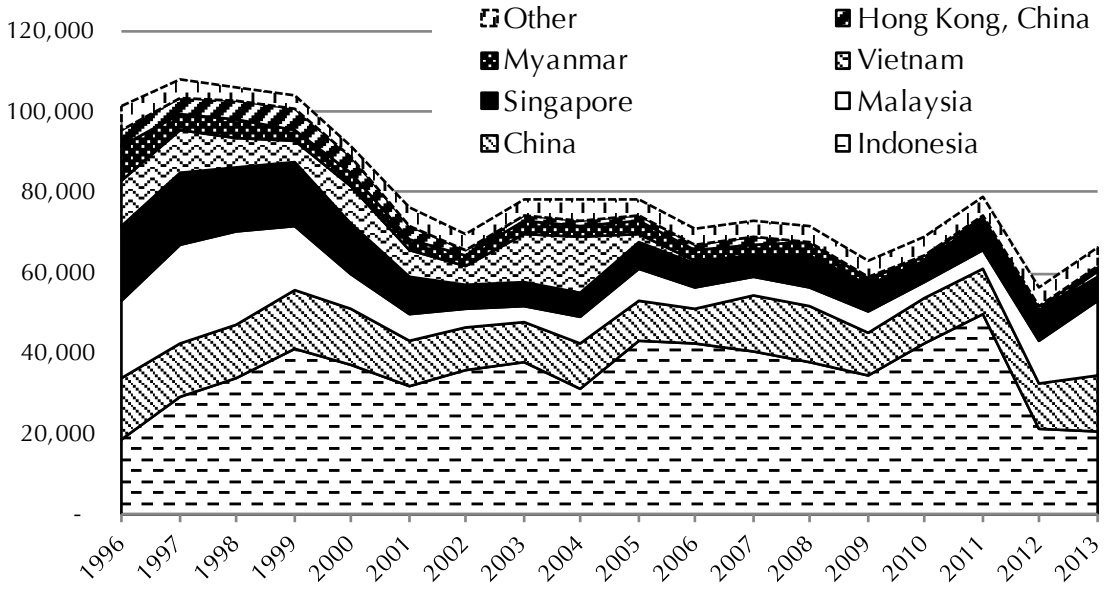
With limited exceptions, rattan is processed a relatively great distance from its source. Even within countries, rattan is usually harvested and transported to furniture manufacturers. This is hardly surprising given the forest locations in which rattan grows. In Indonesia, rattan is primarily extracted from Sulawesi, Sumatra and Kalimantan and processed in Java. In China, domestically produced rattan is predominantly from Hainan Island and processed on the mainland (Li et al. 2007). Overland and inter-island transportation costs were identified as a key constraint in

36. This includes bamboo. There is no reliable source of data for global trade of rattan furniture alone.

the Philippines where production and extraction sites are far removed (Aquino & Adriano 2006; Pabuayon, Rivera & Espanto 1998). I analyse domestic movement of rattan raw materials in Indonesia in Chapter 5.

Although in-country movement of rattan is important, the more significant volumes are found in imports and exports. The industry is subject to significant fluctuation, which I attribute to political and economic factors in Chapter 8. For now, Figure 4-4 shows that the industry has declined since 1997 at the onset of the Asian financial crisis and particularly from 1999 during which time Indonesia was in political and economic crisis but the rattan market also declined on major related markets in Singapore, China and Malaysia.[37] Indonesia's proportion of raw material exports dropped sharply in 2012 for reasons I explore in Chapter 8, which affected the overall global trade, but in 2013 the global trade showed signs of recovery, whilst Indonesia's level of exports dropped off further. These increases were realised primarily by China and Malaysia, and Myanmar.

Figure 4-4: Rattan cane and plaits by exporting country 2007-2013 (tonnes)



(data source: UNcomtrade)

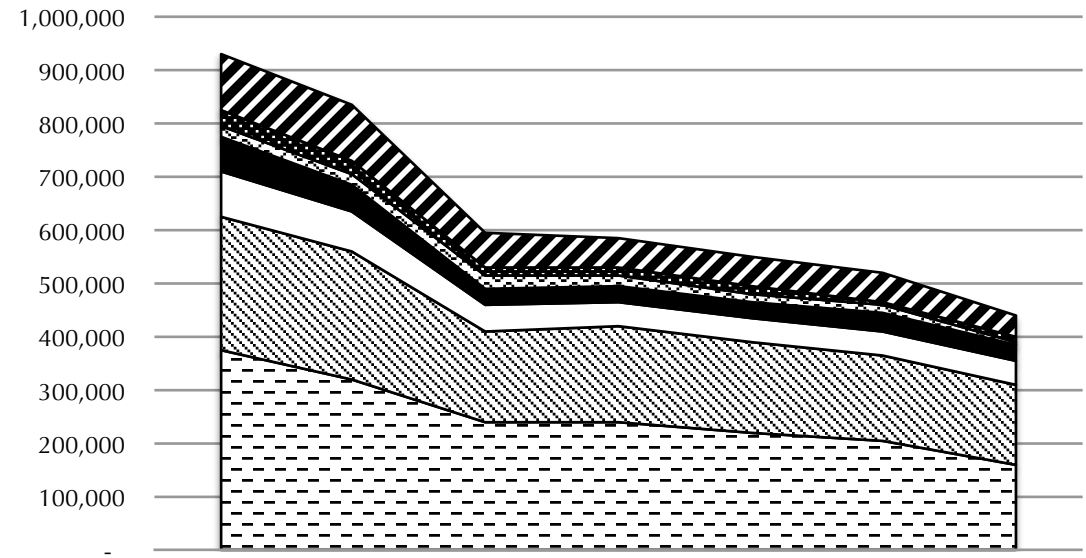
37. The China, Singapore and Malaysia rattan material markets are integrated tightly with Indonesia. Explored more in Chapter 8.

Rattan trade is dominated by actors in only a few countries. I use 2011 data to show the value of trade prior to an Indonesian ban on export of rattan cane (discussed in Section 4.4). Total trade of rattan in that year was 2013USD 88,507,000. Indonesia was the largest exporter of raw rattan material, comprising 59 percent of rattan cane exports worldwide (UNcomtrade). The next largest exporters were China (and Singapore, but those countries also imported at least as much as they exported. By volume, 90 per cent of all rattan cane imports to Singapore were re-exported. Malaysia was the second largest producer of rattan in the world, but its exports were less than 10 per cent of Indonesia's. China was responsible for 45 per cent of all rattan cane imports by value (UNcomtrade).

Finished product trade

The finished rattan product industry is fundamentally export-based in most major rattan product manufacturing countries, with the exception of China. The industry is on the decline, as seen in Figure 4-5. Indonesia remains the biggest exporter, even using the UNcomtrade data, which bundles rattan and bamboo furniture together. Although Indonesia's bamboo exports represent only one per cent of this category (BPS 2013), China is a major bamboo furniture exporting country and therefore Figure 4-5 over represents China for rattan, but gives an idea that the overall rattan and bamboo market is on the decline and now less than half what it was in 2007. The reasons for this decline will be discussed more in Chapter 8. Notwithstanding, the industry is still worth almost 2013USD 550 million.

Figure 4-5: Rattan & bamboo furniture, rattan basket and mat exporters 2007-2013 (2013USD '000)



	2007	2008	2009	2010	2011	2012	2013
Other	109,125	105,631	66,963	54,478	55,388	51,044	42,411
Italy	27,849	24,569	13,764	14,296	13,932	9,448	9,523
Germany	21,540	19,539	23,660	18,725	12,371	12,722	5,301
Philippines	63,469	54,387	29,437	31,568	32,611	33,417	30,130
Vietnam	87,314	73,523	50,147	44,380	42,771	46,081	44,187
China	250,815	239,592	173,320	181,252	170,213	159,277	150,804
Indonesia	372,223	319,422	237,906	239,256	220,654	206,129	157,745

(data source: UNcomtrade)

The global market for finished rattan products is a highly diverse network of actors trading and re-trading furniture, baskets and mats. One hundred and eighty five countries were reported as exporting these products since 2007 (UNcomtrade). Indonesia was the largest exporter in 2011 at 2013USD 220,654,000 but followed by China with 2013USD 170,213,000. Vietnam and the Philippines were substantially smaller exporters with 19 and 15 percent of Indonesia's production respectively. The European Union is the largest importer followed by USA. The Philippines sells to the USA and Indonesia and Vietnam more to the EU.

4.4 Indonesia's rattan trade industry

Indonesia has traded rattan since the fifth century (Wolters 1967 in Peluso 1991). The furniture manufacturing business has only evolved since the 1980s (Peluso 1991). Today, as shown in the previous sub-sections, Indonesia is a major global player in rattan and rattan furniture production. Although the total exports of all rattan products represents less than 0.01 per cent of the total economy (calculated from Badan Pusat Statistik Indonesia 2013; UNcomtrade), an estimated four to five million Indonesians derive income from the rattan industry (ITTO 2007). In specific regions in Indonesia, such as Cirebon on Java, and the villages that produce rattan, it is an important commodity.

Cirebon is the centre of production of rattan furniture, and as was shown earlier, the raw material comes primarily from Kalimantan, Sulawesi and Sumatra. There is a significant basket-making industry in Kalimantan (Meijaard et al. 2014) and furniture factories throughout Java, primarily between Surabaya and Jakarta. Department of Industry and Trade records show 1305 rattan processing companies in Cirebon Regency as at May 2013. Undoubtedly the majority of these are very small scale operations, but reliable data on scale of operations was not available. Since the government does not record the level of activity of companies, nor whether or not they remain open, this figure does not represent the number of rattan companies in the regency. A best guess, after consultation with government and company actors is that there are 300 to 500 active factories in Cirebon, and home industries to support those factories.

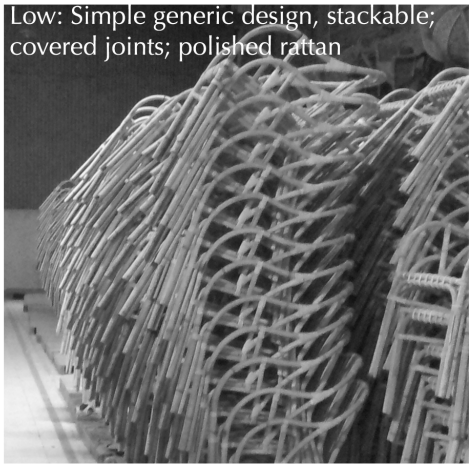
Low market quality furniture tends to be designed for stack-ability for increased efficiency in transportation. Lower and mid quality pieces are sometimes shipped disassembled and final assembly is done in the destination country or even by the consumer. This tends to be a buyer's preference and even high quality products can receive finishing in final markets, but this is usually upholstering or specialised webbing rather than assembly of the frame like in lower-end products. Higher market quality items tend to be made with more dense varieties of rattan, like Manau, and in the highest quality classification, which are older growth and heavier. High-end furniture is also designed without consideration for stack-ability. See Image

4-2 for examples of rattan products by market qualities. The additional costs are built in to the premium prices that high quality pieces fetch in the market. As one manufacturer mentioned "we ship a lot of air." Stating shipments in containers mediates the price extremes between low and high quality furniture since more pieces of low priced items and less pieces of high price items occupy the same space, but this data is not available from all sources.

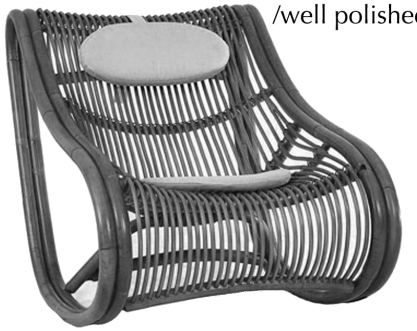
Image 4-2: Examples of furniture market segments

Local: Simple generic design, covered or nailed joints; BC/CD grade rattan

Low: Simple generic design, stackable; covered joints; polished rattan



High: Customised design, exposed joinery, better species, washed & sulphured /well polished



◀ Medium: Extra detail, some exposed joints, no exposed fasterners

High-end market quality example photo used with permission from Aida Rattan Industries www.schuetzfurniture.com Others by author. There are no industry-agreed upon standards for classifying furniture qualities. For heuristic purposes, I use some of the indications as seen in the image, but there is considerable variation within these categories. Some styles, for example, can be high-end but have covered joint, especially if it features a wicker design.

4.5 Indonesia's rattan industry policy environment

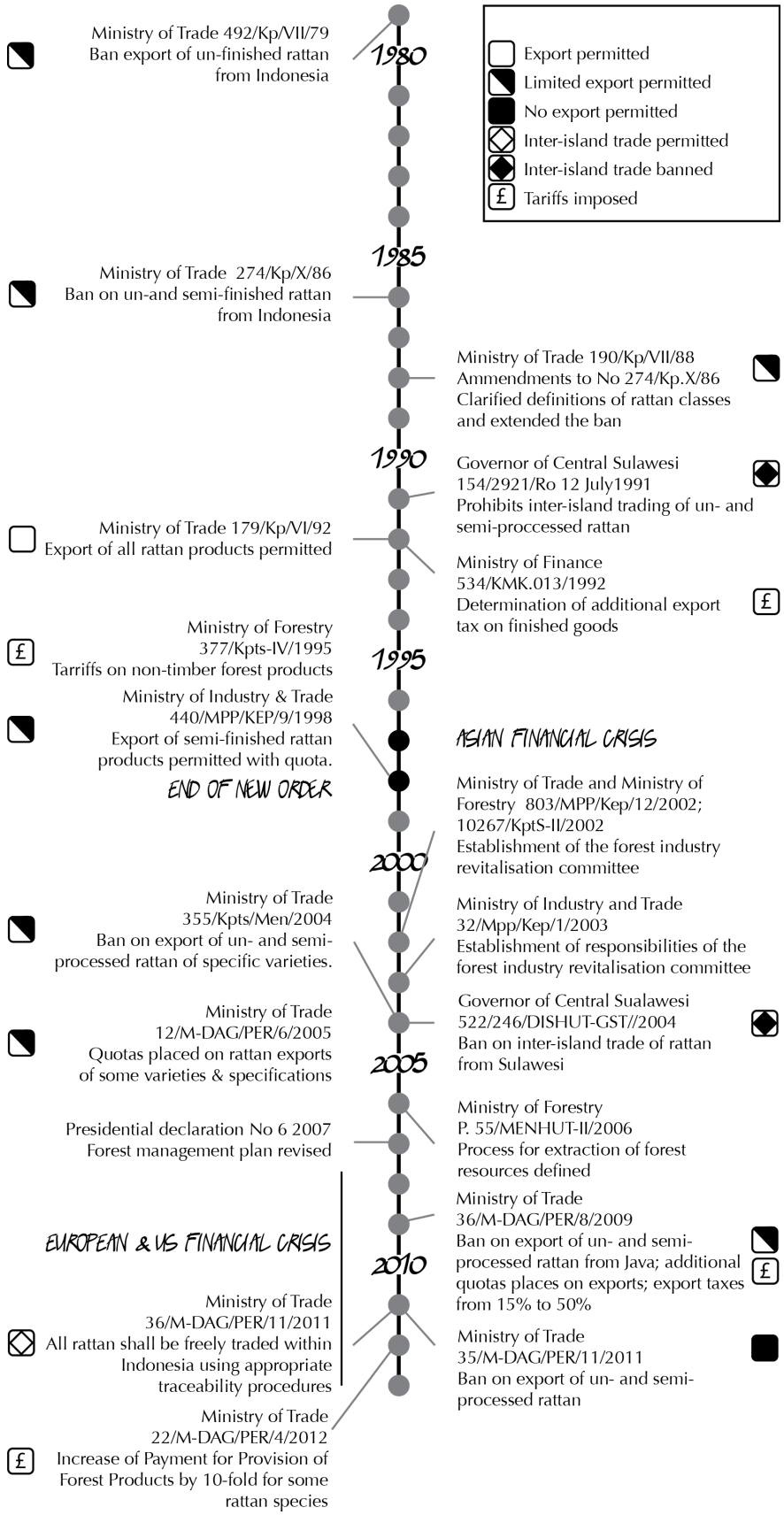
Rattan has received a disproportional amount of attention from the Indonesian government through the imposition of various trade restrictions over the past forty years. Figure 4-6 shows the main policies that affect rattan nationally and in Sulawesi. Indonesia first prohibited the export of un-finished rattan in 1979 (GoI 1979) in a move to develop its furniture production industry. In 1986, the decree was extended to include the prohibition of semi-finished rattan (ITTO-MOF 2008), which was broadened to include more species and products in 1988, including webbing (ITTO-MOF 2008). The 1988 ban depressed forest gate prices of rattan cane by 30 to 50 per cent (Godoy & Feaw 1989). The force behind these bans was the Indonesian Association of Furniture Producers, headed by Bob Hasan, a member of the political-economic elite. The ban was criticised for favouring elites at the expense of rattan collectors in outlying islands (Dove 1993). Protectionist trade restrictions were rampant in Indonesia in the 1980s, and largely attributed to concentration of benefits among elites (Bird & Manning 2003).[38] These trade prohibitions remained until 1992 when the Ministry of Trade opened the export of rattan along with a determination of prohibitive taxes on the export of rattan (GoI 1992a, 1992b). Some limitations were put in place in 1998 to permit the export of semi-finished rattan within quotas (GoI 1998). This corresponded with the end of the New Order, a government led by President Suharto from 1965 to 1998, which ended as a result of mass protests and a crumbling economy compounded by the Asian Economic Crisis (Bourchier & Hadiz 2003; van Zanden & Marks 2012). The 1998 changes were part of a larger exercise of re-aligning Indonesian export tariffs and export regulations that affected 34 commodities (Kim 2010).

Quotas remained in place until 2004, when a ban was placed on the export of specific species (GoI 2004), followed up on in 2005 when quotas were placed on a broader range of rattan species and restrictions on semi-processed rattan were lifted

38. Log export bans, especially, have been criticised. While they served to increase plywood production, the net benefits were generally negative (Lindsay 1989; Resosudarmo & Yusuf 2006) as they have been in other countries (Kishor et al. 2004), although there is a camp of observers who consider banning the export of logs better than uncapped tree-trade but that assurances must be put in place to ensure environmental bases for bans are not ineffective due to domestic markets replacing international ones (Dudley 2004; Goodland & Daly 1996).

(GoI 2005). In 2009, the Ministry of Trade outlined a full ban on exports of un- and semi-processed rattan from Java (GoI 2009a) and placed further restrictions on the export of rattan so that the domestic industries would be served first (GoI 2009b).

Figure 4-6: Timeline of Indonesian policies influencing rattan trade



Verified with Hoesan (2013) and Tellu (2007) in addition to original bills and author input

The 2009 ban was intended to position the Indonesian furniture factories, almost all of which are on Java, to have better access to rattan material and forced exporters of rattan cane to export through trade routes other than Java, from which the bulk of rattan had been shipped, at increased expense. Further, industry insiders estimate that over 90 per cent of plaiting material was processed in Java prior to 2009. The inability of these processors to export resulted in insufficient sales to remain profitable and by 2013 almost all had gone out of business, leaving furniture factories to process their own plaiting material.

In 2011, the full ban of all exports was put in place and is still in place today. As already shown, Indonesia dominated the rattan cane export market at the time. Factories, focussed in Cirebon and Surabaya, were concerned about the unavailability of material, especially high quality material, and the rising competition from other countries using Indonesian rattan material. Although there are continual protests from outlying islands about the ban, a recall of the ban is unlikely until it is proven to have not had its intended impact.

Of all of these policy changes, the most significant to the issue of access to benefits in the rattan industry is the 2011 ban on the export of un-and semi-processed rattan (35/M-DAG/PER/11/2011, hereafter referred to as 35/2011 or 'the ban') in which all export of un- and semi-finished rattan was banned effective January 1, 2012. It was accompanied by another regulation that stipulates the verification of rattan trades (36/M-DAG/PER/11/2011, hereafter referred to as 36/2011). 36/2011 had a relatively small impact on the actual trade of rattan cane, but a larger one on how rattan furniture is defined, which increased the reported volume of exports. I examine the implications of the these policies in Chapters 7 and 8.

In this section, I presented basic information around the background of the rattan and rattan furniture industries, as well as rattan in Indonesia. In the next section, I go deeper into aspects of the industry and the source of rattan as I describe the actors in the industries, starting from the cane collectors in Utani.

4.6 Actors and processes in the rattan GPN

In this section, I detail the main actor types and processes within the rattan GPN. The purpose of this section is to provide an overview of how the rattan GPN is organised and what types of actors are active within it. By the end of this section, the ways in which rattan is processed will be clear and the general actors types involved in the process will be known, with a sense of how each type of actor relates to others. This sets the context for mining into the social relations among actors in the next chapters and analysing how mechanism of access are employed among them, as well as how the materiality of rattan affects these relations. In the summary of this chapter, I provide a schematic of all the actor types and how they fit into the rattan GPN.

4.6.1 Cane collectors

Cane collectors in the Utani forest are men living in nearby villages. In other areas of Indonesia, women are involved in cane harvesting (Peluso 1991), but in this case, it is only men. Specifically, only healthy men, most often between 16 and 45 years old. Collectors organise in groups, but often collect independently, as discussed more in Chapter 5. The group appoints one member, not always the same person, to make arrangements with the *boss* with whom terms of payment are negotiated: usually price per kilogram and amount of advance payment (*panjar*). Most collectors expect an advance before they start a collection. Advances are used to purchase bulk basic needs: rice, sugar and cigarettes. The balance is given to the collectors' wives for the family's daily needs while the collector is not earning other income in the forest. After these terms have been agreed and the advance paid, the collectors can start the harvest of rattan.

For reasons that I explain in Chapter 5, rattan is collected a distance from the village. Utani collectors set up camp five to ten kilometres from the village and camp there from one week to a month at a time. Those camping for a week return to the village on Saturday afternoons, tend to village responsibilities, and return to the forest on Sunday night. The hike to rattan in the forest is inevitably uphill for up to two hours, clearing brush along the way with a machete. The collectors begin to harvest the rattan by cutting the vine at the base with a machete. Due to the nature of rattan,

which extends cirri to entangle itself in trees, the rattan is unlikely to be felled by simply cutting the base of the vine. The collector cuts whatever cirri he can but since the rattan grows up to 100m (most harvested are 10 to 15 m), the uppermost cirri cannot be reached. The collector must then fell the surrounding trees. In the cases I witnessed, three to five trees were felled per vine. The trees are of small diameter and the collectors are aware and concerned about forest sustainability. They do not cut trees that have a trunk of a diameter greater than 20cm. Each tree took less than a minute to fell with the machete. Larger trees may be climbed to cut cirri.[39]

After the vine is freed from the surrounding vegetation, its thorny protective layer can be removed with surprising ease. I remind you of the thorns shown on page 97, it is a difficult task to take hold of the rattan, but the expert collector can shuck the thorns in a matter of minutes. The process involves making a slice with the machete at a low angle, almost parallel to the vine. Once the first slice has been made, exposing the smooth inner peel of the rattan, the machete can slice parallel to the cane to shuck the thorny protective skin. The exposed rattan is then dragged through the forest, its smooth wet peel enabling the collector to pull 15m of cane with relative ease. The collector choses a collection point in the forest and once a satisfactory number of canes are collected, he manually straightens any curved sections by leveraging the cane against his foot. This process takes just a few minutes per cane as it is still pliable and wet. The number of canes collected depends on the species, but once 40 to 50 kg is collected, it is bound by strands of rattan cut from cane by the collector. Image 4-3 shows a stream of bundles that collectors have brought down by the end of the morning.

39. The collection method will vary depending on location. Siebert (2005) describes collectors climbing trees up to 30m to cut cirri.

Image 4-3: Bundles of cane after harvesting

Source: Author

Each collector collects a minimum of 20 canes per day, or 75 to 100 kg. Total collection time is about five of six hours per day, including taking numerous rests on the way up. Collectors like to get started in the morning and be finished about 3pm. Depending on the distance of the harvest point, this means two or three trips up the mountain each day.

After four or five weeks of collecting canes (until they have about two tonnes each), the collectors start the process of bundling for transportation to the point of sale. This involves making larger bundles incorporating a float to make the bundle buoyant (shown in Image 4-4). Wet rattan is more dense than water and therefore would sink in the impending three-day swim to the point of sale. Floats are made from the trunks of small-diameter softwood trees. Rattans and the floaters are bound together

in 100 kg bundles and carefully tied with strands of rattan. It is important to tie the bundles tightly so that they do not break during transit, else valuable rattans will sink in the rough waters.

Image 4-4: Rattan bundles ready for transportation in the river

Source: Author

An important final step before taking the rattan to the water is marking the bundles. This is done in two ways. First, is with mark of the collector. Each collector has his unique signature, which is any combination of a knot and carving at least one notch in a cane per bundle. Some combinations of these demarcations are shown in Image 4-5.

Image 4-5: Rattan collector signatures

Source: Author

The last step of preparation involves painting the bundles with the colour of paint given by the boss. This makes it clear to the boss which bundles are allocated for them.

Finally, the collectors embark on the swim, a process that takes three days. They may have to wait several weeks until the conditions of the water calm so that it is safe to take this voyage. The boss lends them life jackets and some also provide food at checkpoints along the way. The collectors swim in groups of five or six. Any more would involve too many bundles and be dangerous to manage. The bundles float freely along the river, with each swimmer managing 15 to 20, or up to two tonnes of rattan. The group assigns one member to go ahead on land with the food supplies at each camp, and to help reign in the rattan bundles for the night. Another, known as the *penjaga* (one who looks over) is charged with collecting errant bundles or unbundled rattan in the river.

Image 4-6: Rattan collector bringing in his last bundle after a three-day swim

Source: Author

While all rattan is brought to the same collection point, bosses come at specified times and are usually not there at the same time, as there is limited space for shifting the rattan around and only a narrow road for the large trucks to enter. Image 4-7 shows the weighing process. After the weighing, the collectors wait to get paid, a process that takes from a couple of days to a week depending on the boss. The boss deducts the advance payment and makes payment to the foreman or to a group of collectors. The price paid is the same, although those working for the foreman accept a 13 per cent cut for his fee.

Image 4-7: Weighing the rattan with the trader

Source: Author

4.6.2 Cane traders (bosses)

Bosses are based in a number of villages along the main road to Palu. I use the pseudonym *Belia* to describe the area, but the bosses are from several different villages within about 50 km from *Belia*. There are five bosses in the area. Three of them were involved with rattan from Utani. Bosses perform as intermediaries between the collectors and the processors in Palu. They are specialised in maintaining relationships with both collectors and processors, with both of these groups stating that the bosses are indispensable to the process. From the processor's perspective, the boss takes care of many of the details with which the processor does not want to concern himself. As I will show more in Chapter 5, relationships between bosses and collectors are long standing and collectors are quite loyal to the traders.

The bosses invest in hiring trucks to come to the collection points and transport six tonnes of wet rattan from the riverbank to the processor in Palu, a four-hour journey. Image 4-8 shows a truck loaded at the river bank ready to go to Palu.

Once the entire order is delivered, the boss is paid on the spot. Most of the processors provide an advance to the boss in the same way that the boss provides and advance to the collector. This access to capital is a financial mechanism that cements the validity of the transaction.

Image 4-8: Loaded truck from collection point to Palu

Source: Author

4.6.3 Cane processors

Cane processors are mostly based in the Palu area, on the road to Pantaloan, the major port for shipment to Java. Owners of the remaining six facilities tend to be reasonably affluent and of Chinese ethnic origin, several of whom are able to speak Mandarin or Cantonese, which greatly facilitated trade with Singapore, China and Hong Kong. They have facilities spreading over several hectares, which is required for the drying of rattan under the sun. The processing facilities comprise a drying area, a curing system, storage, and a polishing factory. Some factories also have machines for creating plaits, or stripped rattan whether from the peel or core.

Rattan slated for polishing is cured in oil as a first step in processing. A variety of oils can be used but the industry norm is diesel fuel in long vats over a wood-burning pit (seen in Image 4-9). There has been consumer-driven pressure from environmentally-sensitive corporations such as IKEA to seek alternatives such as vegetable or coconut oil, but so far there were no processors in the Palu area prepared to use that technique, citing cost and quality issues. The curing process is primarily to rid the cane of chlorophyll and fungi that result in discolouration and

inconsistent colouring. The diesel fuel penetrates only a few millimetres into the cut ends and does not penetrate the skin of the rattan at all. Once cured, the rattan is ready for drying.

Image 4-9: Curing facilities

Source: Author

The cane arrives wet and must lose half its weight to evaporation and curing before reaching an acceptable moisture content for further processing. The drying process for *batang* takes from 10 to 20 days in the dry season depending on the species and how long it has been since harvesting. Palu is an ideal location for cane processing because it is one of driest locations in Indonesia. Drying usually takes place under the sun as shown in Image 4-10. Some processors store the cane upright in a tepee shape, which requires less land and some claim that the cane dries faster, but those in favour of the horizontal orientation say that it results in less cracking. The processors move the dried cane to dry storage (seen in the background of Image 4-10) for a period of no longer than three months, after which time the quality is diminished primarily by boring insects.

Image 4-10: Drying facilities

Source: Author

After the cane is dried, it is manually straightened by forcing curves through a slat and leveraging the cane in the opposite direction of the bend. Straightening machines are available, but one factory owner claims that machines are more costly and less effective than a manual process. The rattan is then ready for finishing. The finishing process involves sanding several millimetres off the exterior of the cane to remove the peel and create a more consistent diameter and cutting the lengths to square edges. This work is done by both women and men. The facilities are shown in Image 4-11. The work involves feeding the cane through a jig so belt sanders can remove the peel and any inconsistencies in the cane. A single worker can process about 40 canes of 25-30mm or 30 canes of 30-40mm *batang* in a day. It is difficult work as the powerful sanders send vibrations down the cane, which have to be managed with two hands. The sanders also produce a significant amount of dust and workers do not wear masks.

Image 4-11: Finishing facilities

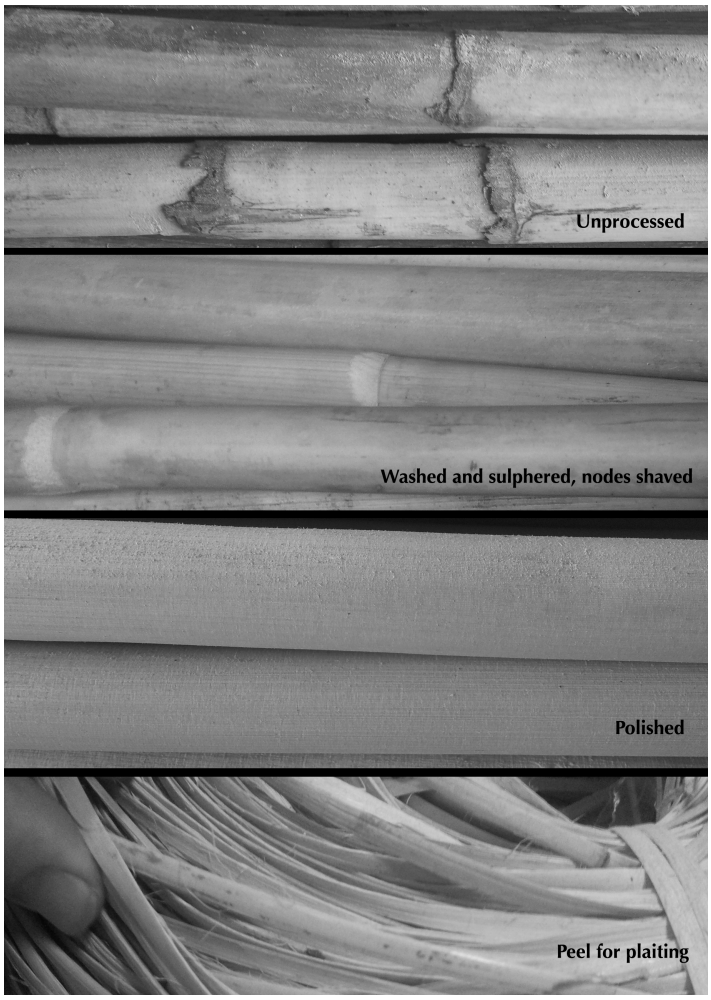
Source: Author

While polished rattan is the most common, a higher-value but less used product is rattan that still has its peel. This product is not cured, but *washed and sulphured* after the laborious task of smoothing the nodes that grow naturally on the cane (see Image 4-12). The sulphuring process involves rinsing the cane in sulphur dioxide to remove any excess silica and to preserve the cane (Dransfield 2002); it also has a bleaching effect, which makes the finished colour more desirable in most species. This process used to be done in Javanese processing facilities, which no longer exist except for a single factory that is owned by a Palu processor. Central Sulawesi processors mention that they cannot secure reliable labour to undertake this task in Palu. According to owners and employees, Central Sulawesi people do not like laborious tasks and prefer to undertake productive activities that have tangible results in short amounts of time. The process of removing excess nodular material is tedious and can take up to 30 minutes for a single cane, taking care not to scratch the peel.

Any rattan with peel (usually referred to as WS [for washed and sulphured] rattan) is usually shipped dried to a broker in Surabaya that hires labour to remove the excess nodular material and wash the cane.

After the cane is finished, it is ready to be graded and loaded into containers. Grading is done by factory foremen with a good eye. Finished rattan cane is graded according to the criteria that is not universally agreed upon nor documented to any standard use in practice. Sellers and buyers interpret the classifications themselves as ranging from A to D with A being the highest class. Sales are often made on the basis of mixed classifications such as AB, BC, or CD. Buyers rely on the classification of the seller. Local companies are not aware of any accepted standards within Indonesia nor internationally. See Appendix F for more on rattan cane classification.

Image 4-12: Rattan in raw form, cleaned, polished and plaited



Source: Author

Although some orders are made directly from Java, one processor controls the majority of rattan traded from Palu and sent to Java, as confirmed by the other processors. He has three processing facilities in Palu and a dedicated agreement with the second biggest processor, who sells exclusively to him. He has a wholesaling facility in Cirebon called Star,[40] which supplies most of the *batang* and other species from Sulawesi in Cirebon.

4.6.4 Domestic cane and material brokers, suppliers and transporters

Cane suppliers (locally called 'grocers') in Cirebon range from small businesses to large companies with substantial capital in terms of land, equipment, and storage facilities. The large suppliers are generally characterised by direct market linkages with Sulawesi and Kalimantan. These suppliers directly place orders with cane processors, and usually get a better price than secondary cane retailers. Small suppliers generally purchase from Surabaya or from the larger suppliers in Cirebon. Suppliers require a warehouse and delivery trucks. Some are involved in basic processing of rattan, including polishing and washing & sulphuring, and making plaiting material (*peel* and *fitrit*).

Prices of rattan from smaller suppliers are about IDR 2000/kg (USD 0.17) higher than product sourced from larger suppliers, but because of ease of access, they are able to retain clientele, according to some of their customers. They are located strategically close to home industry centres, many of whom cannot order large amounts because of limited storage space and capital resources.

Mid-sized suppliers have only eight to ten staff with warehouses of 200 to 1000 square metres (see Image 4-13 as an example) and two or three delivery trucks. At the time of this research, mid-sized warehouses were at low capacity, citing struggles in obtaining material and low orders. They reserve a small quantity of cane at any one time for drop-in customers and generally place orders as requested by manufacturers due to capital constraints. Delivery times for typical specifications and species can take as little as one week according to respondents. The customer lists

40. Pseudonym

comprise 100 to 300 customers, who purchase irregularly as furniture orders come in. Several mid-sized manufacturers prefer to purchase from larger suppliers but due to limited availability of resources at any one time, they say they are forced to shop around and therefore exhibit little loyalty for any specific supplier.

There are only a few large suppliers in Cirebon, with Star being the biggest. Most of Star's customers, rattan furniture manufacturers, know that Star is more expensive than alternative suppliers in Surabaya, but they are lured by the convenience. Several factories complained that Star's classification of quality is inconsistent, resulting in frustration for the customer to the extent that some have had to send shipments back to Star. But Star has a near monopoly for *batang* in Cirebon. Smaller suppliers have difficulty sourcing *batang* and other species from Sulawesi. Some bigger factories order from Surabaya where there are more grocers selling Sulawesi rattan. The three biggest rattan cane suppliers in Surabaya also have processing facilities in Palu. Star works co-operatively with one, with Star controlling the Cirebon market and the other company having a foothold in Surabaya.

Image 4-13: Mid-sized warehouse with low inventory of rattan poles in Cirebon

Source: Author

Other material suppliers include those providing the stains, varnishes and fasteners that are required for finished product, in addition to the countless suppliers of other materials that may be combined with rattan construction such as glass, fabric, wood, water hyacinth, banana leaf, and many more. As I note in Chapter 8, many of these products are increasing in popularity, often replacing rattan products in the market. I

focus on the suppliers of products directly required for the production of rattan. Rattan is just one of many uses for their products, so if trends move toward water hyacinth, for example, they may not experience any direct impact.

Transportation within Java is by truck, which the wholesalers of big factories hire as needed. Wholesalers have their own truck for local deliveries, but long hauls, such as from Surabaya, are usually hired and selected from a wide range of service providers using the same equipment as the shipment of any other goods in Indonesia- open bed lorries and cargo container haulers. Most rattan cane is shipped using standard weight calculations. Local transportation within Cirebon, is often by standard pick-up truck for smaller orders (see Image 4-14).

Image 4-14: Fully loaded local pick-up truck in Cirebon with low-quality TSI rattan

Source: Author

4.6.5 International cane and material brokers, suppliers and transporters

With the exception of Indonesia, all rattan furniture-exporting countries import rattan cane. Cane and plaiting dealers import primarily from China, which gets most of its product from Indonesia. This issue is explored more in Chapter 8.

Brokers and wholesalers specialise in collecting various rattan species and materials from different regions of Indonesia and Malaysia and compile them in a one-stop-shop so that all species, sizes, and processed cane products could be purchased in one place. This made them a favourite of raw material importers, according to Indonesian processors. There have been several changes to the flows of rattan cane and plaits since the Indonesia export ban was imposed. The total number of importers of rattan material is not known, but I explore international trades in Chapter 8.

International shippers are not specialised in rattan. The international container shipping business is dominated by three strategic alliances with no individual companies holding a majority controlling share in any geographic market (Panayides & Wiedmer 2011). In Asia, the largest company, the Evergreen Group, holds just under a 12 per cent share of the market (Panayides & Wiedmer 2011). Prior to 2012, when the ban on the export of un- and semi-processed rattan was implemented, containers were packed in Sulawesi, shipped to Surabaya or Jakarta, and then to the destination country. After 2012, rattan is shipped to Surabaya and unpacked in order to prepare it for smuggling to other countries or shipped directly from source islands. Shipments of rattan between islands in Indonesia is monitored by SUCOFINDO, a State-owned company responsible for verification of trading for a number of commodities in the country.

There is evidence, discussed in Chapter 8, of non-registered shipments of rattan leaving the country by boat and by land in Kalimantan. Actors involved in this trade are usually smaller operators shipping rattan from un-official ports in vessels designed for other purposes. Malaysia is just eight hours from the Palu port and is accessible by many roads on the island of Borneo as Chapter 8 shows. These smugglers may encounter coast guards as they leave for international shores, with whom they may engage in co-operative or confrontational relationships, depending on the proclivities of the actors involved. I was not able to witness these transactions myself. According to industry insiders, smuggling is also conducted by re-packing containers with other products, most commonly, rattan furniture, such that rattan cane is in the back of the 40-foot container and therefore unlikely to be inspected.

Customs agents routinely verify the contents of containers at the port, which has resulted in a number of arrests made prominent in the media (Custom office of Tanjung Priok thwarted rattan smuggling valued more than IDR1 billion 2014; Customs Office of Tarakan thwarted rattan smuggling to Malaysia 2014; Once again, customs office thwarted rattan smuggling valued IDR5 billion 2014; Raw rattan export ban triggers its smuggling to China, Republika Online October 19, 2012; Tanjung Priok customs thwarts rattan, timber smuggling, Tempo February 15, 2013).

4.6.6 Furniture manufacturers, packers and shippers

Although most rattan furniture production is on Java, there are local producers throughout Indonesia serving local markets. There are only 26 manufacturers in the Palu area of Central Sulawesi according to the Department of Medium and Small Enterprise and Co-operatives. They are all cottage industries and sell their product in Palu. The manufacturers include those from Palu families and newcomers who have worked in factories in Cirebon and Surabaya but faced too much competition there and opened their business near the source of rattan. The quality of production is low with fairly standardised designs in most shops. Almost exclusively, they also have their own shops in Palu and sell directly to customers. I observed similar operations in Sri Lanka.

In Cirebon and Surabaya, furniture manufacturers vary considerably in scale of operation and product quality. Most factories make use of the home industry workers, especially in the busy times. A common model for medium and some high-end furniture companies was to sub-contract basic construction to home industry and perform finishing or assembly in the factory (see Image 4-15). Home industries are organised by a foreman who handles the contract with the company, performs quality control, and makes payments to workers. The groups I interviewed tended to be clustered by family and/or location at the hamlet level. They identified strongly with rattan as part of their heritage and most had been working with rattan since they were children. The foreman usually has several client furniture companies and the companies usually have several home industry suppliers. This allows both the home industries and factories to adjust labour to demand. A few, usually medium to high quality factories prefer to have all of their employees in the factory rather than at

home, but this is increasingly rare according to companies interviewed. As the rattan market declines, factories can no longer commit to permanently employing staff and workers prefer to work from home where they have more flexibility and don't have to be in a factory all day.

Image 4-15: Finishing of rattan in furniture factory

Source: Author

The amount of labour required per unit depends on the quality and complexity of the design. A single worker can complete up to five simple chairs per day, but some complicated pieces that involve weaving and more precise joinery can take up to a week to make for a single worker. One high-end chair is reputed to take over 100 hours to make due to its intricate woven design.

In addition to manufacturers, there are also rattan furniture companies that outsource all manufacturing. These companies act as brokers and have linkages with buyers and factories. Each order can be outsourced to a different company and may use home industry or factories as required. One of the biggest is a Chinese-owned company based in Jakarta, which has large clients such as Pier 1 in the United States.

Manufacturers tend to have longstanding relationships with their buyers. I discuss this in Chapters 7 and 8. Specific factories tend to specialise in specific regional markets. Some focus on Japan, others the EU, others the US and so on. This has to

do with the relationships that they build with buyers in these regions. Once a relationship is built, it withstands time as buyers state it is difficult to change suppliers and factories state that it is difficult to find buyers. I explore this, and the notion of trust among trading partners later in this study.

Most factories produce and sell their own furniture, according to agreed upon specifications by the buyer. Designs are sourced both from the buyer and the manufacturer. Factories with higher-end designs purchase designs from professional designers, while many others have in-house designers. There are some freelance rattan furniture designers, but this was rare in the factories that I interviewed.

There are several packaging services available in Cirebon, which are contracted by the manufacturers to package each piece of furniture and load it into a container. From there, manufacturers are responsible to get their containers inspected by SUCOFINDO, a State-owned company responsible for confirming and classifying the contents of the container. This process usually takes two or three days after the container is packed. Once completed, SUCOFINDO seals the container and the furniture company orders a truck to bring the containers to the port for shipping. Most exports of furniture are made though one of the ports in Jakarta, although some may go through Surabaya first depending on the location of the factory. Shipping is arranged by either the buyer or the seller of furniture. The port authorities confirm the manifests before the containers are loaded and the shipment is received in the destination country.

4.6.7 Furniture importers, wholesalers and retailers

Based on interview data, most rattan furniture is imported by the retailer or branded wholesaler. Retailers, then, have direct relationships with manufacturers, making purchase contracts directly with manufacturers, and seeing the process through until the shipment is received to their warehouses. Enumerating the numbers of importers is outside the scope of this study, but there are some large ones that were consistently mentioned as having influence on rattan furniture markets. IKEA was the most often mentioned and Pier 1 in the United States was another. Others range from home and garden stores, to dedicated rattan shops, that are usually small to medium enterprises. At this time, there are no restrictions on importing rattan

furniture, although there is discussion that the EU FLEGT and US Lacey Act could expand to cover rattan furniture in the future. NGOs including WWF and SNV (*Stichting Nederlandse Vrijwilligers* - Netherlands Development Organization) have active projects in Indonesia on this issue.

As I experienced in fieldwork, importing retailers guard their supplier lists closely. This is testament to the challenge of finding good suppliers and building trust among them, which is why, as I show in Chapter 7, both manufacturers and retailers value these relationships greatly and are even willing to accept less profit on the reduced risk of working together with a trusted trading partner.

4.6.8 Industry associations and government

There are three main industry associations involved in rattan trade in Indonesia: AMKRI (*Asosiasi Mebel Kerajinan Indonesia* - Indonesian Association of Wood and Rattan Furniture), APRI (*Asosiasi Pengusaha Rotan Indonesia* - Indonesian Rattan Business Owners Association) and ASMINDO (*Asosiasi Industri Permebelan & Kerajinan Indonesia* - Indonesian Furniture Industry and Handicraft Association). APRI is a member of ASMINDO and represents the rattan processors and the rattan cane industry. ASMINDO and AMKRI are both centred around the furniture industry. ASMINDO was established in 1988[41] and APRI in 2004.[42] AMKRI was formed in 2007 leading up to the 2009 and 2011 bans on un-and semi-processed rattan export. As I explore in Section 7.3, AMKRI and ASMINDO find themselves competing over influence in furniture markets and representation of factories.

The main government bodies involved in the trade of rattan are at a national level: The Ministry of Trade and to some extent, the Ministry of Finance. The Ministry of Trade is responsible for the changes in export regulations. The Ministry of Finance has imposed various tax regimes depending on the legality of export. Other ministries are also involved in the rattan industry: primarily the Ministry of

41. The same year of an extended rattan export ban

42. The same year as a new rattan export ban

Environment and Forestry[43] in terms of controlling access to Indonesia's vast forest estate and the Ministry of Industry, involved at the industrial processing levels within the GPN. There is also an important government corporation, SUCOFINDO, responsible for the verification of rattan trade by ship, and to a lesser extent there are various customs and port authorities also involved in that process.

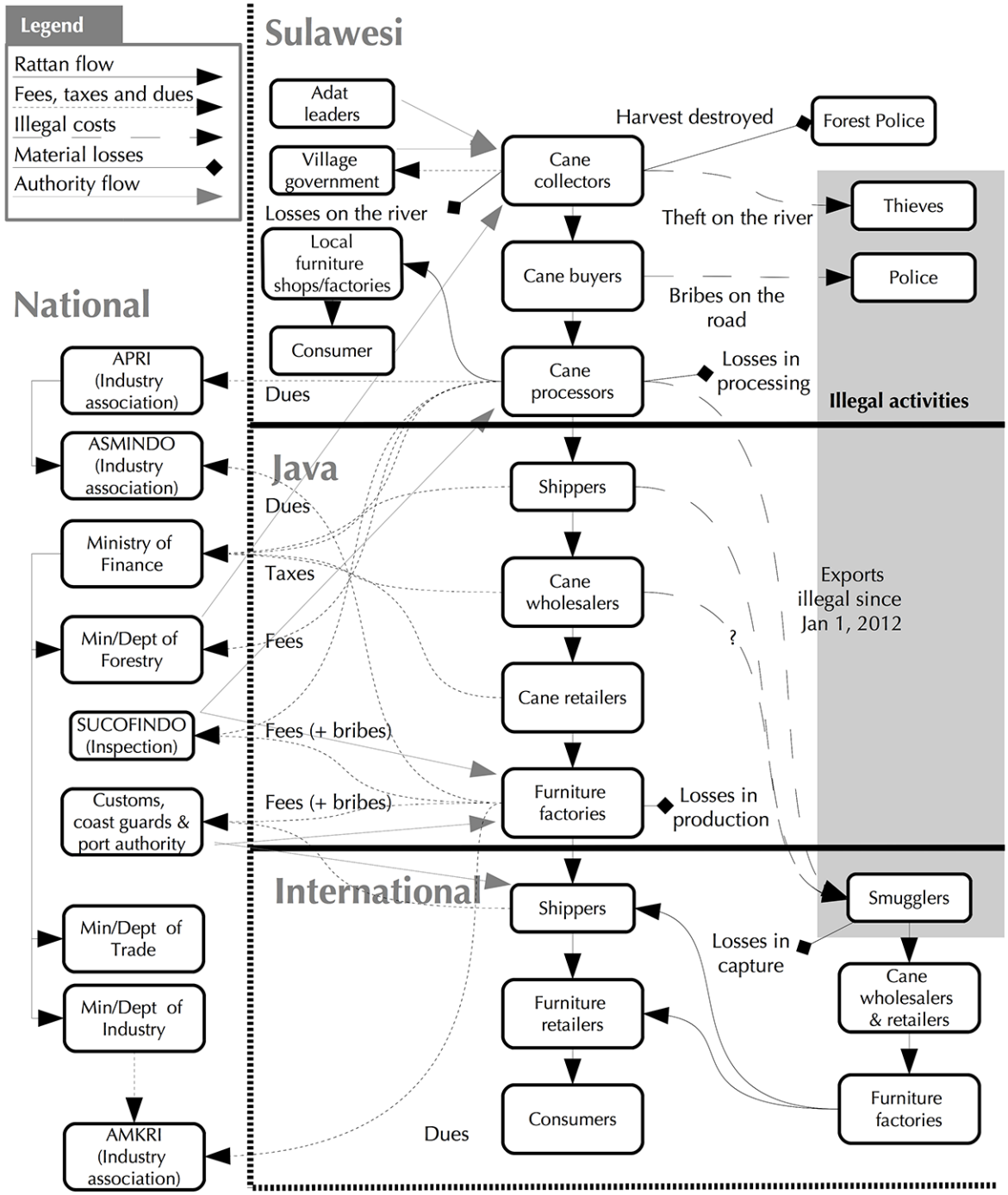
4.7 Summary

In this chapter, I provided the setting for the remaining analytical chapters, from both natural and social perspectives. Because of the multi-scalar nature of this study, I provided an in-depth introduction to the case so that the remaining empirical sections can draw on this chapter, since each empirical chapter focusses on a different set of phases of production within the GPN. This chapter showed that there are a range of actors at various levels of processing what amounts to two industries: rattan cane and finished products. I introduced some of the general characteristics of actors at each phase of production as well as the relationships between different types of actors. This frame will be used to mine into the nature of these relationships and the ways that rattan is transformed by them. The next four chapters analyse the ways in which actors access rattan within the GPN, starting at the raw material extraction and processing phases, then to the furniture manufacturing phases, and finally to the international export markets.

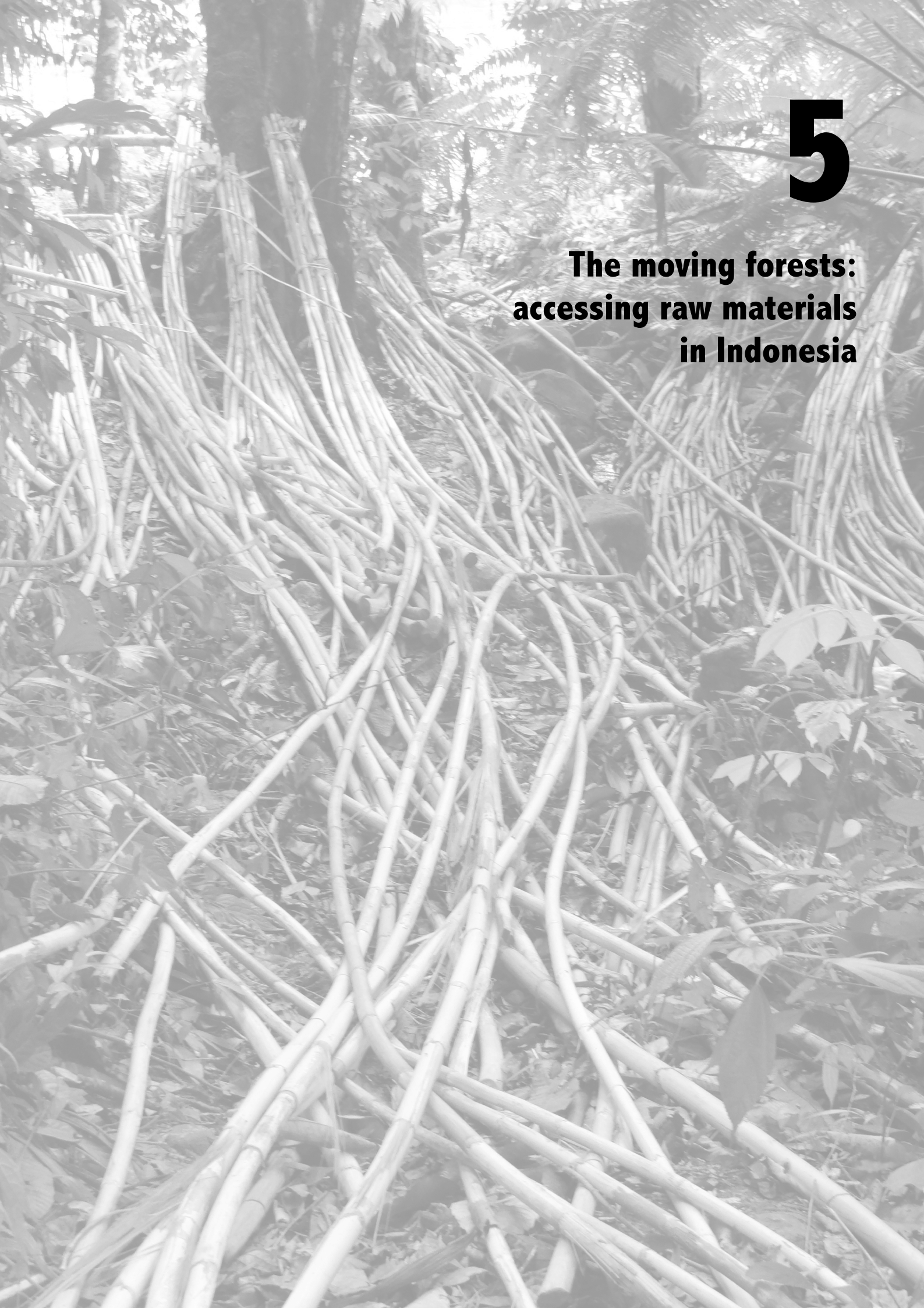
For heuristic purposes, Figure 4-7 shows a linear orientation of the rattan GPN by phases of production and major actor types. In the figure, I show the primary groups of actors and primary types of relationships among actor groups and some points of material losses. To simplify the figure, I have grouped some actors such as national, provincial and district-level ministries and departments together. In practice, these groups can have divergent interests, although due to limitations of scope, I do not explore them in detail in this study.

43. The Ministry of Environment and the Ministry of Forestry were merged after President Widodo was inaugurated in late 2014.

Figure 4-7: Simplified rattan GPN actors and relationships



In the remaining chapters of this study, I explore how these actors and aspects of rattan and the rattan industry factor into access within the rattan GPN. Relations between the GPN actors will be explored by broad phase of production, at raw material phases in Chapters 5 and 6, domestic furniture processing in Chapter 7 and finally international trade levels in Chapter 8. Several themes will re-occur in these chapters. The export ban is an important event that has implications for access at several levels. The tensions between the industry associations and collaborations with government will be explored further in Chapter 7. The difficulties in accessing raw materials by the factories will be explored in Chapter 7. And ultimately, how changes in the rattan furniture and cane industries are affecting international markets will be analysed in Chapter 8.



5

The moving forests: accessing raw materials in Indonesia

The rattan global production network (GPN) begins in the forest. Actors at the forest level respond to market demands by other actors and balance their ability to benefit from rattan against alternative sources of benefit. While forest-based actors have little control over prices and market demands, this balance dictates their level of involvement in the rattan production network and ultimately the physical availability of rattan in the forest as only they are positioned to extract it. Utani villagers' choice to work with alternatives to rattan results in what they call 'moving forests', signalling increasing difficulties in collecting rattan from the forest as forestland is converted to agricultural land.

Using an access framework, I draw on a number of theories pertaining to social and labour relations in GPNs, authority, wealth and materiality. Theories around NTFPs, wealth and elites suggest that wealthier actors are better positioned to benefit (Angelsen & Wunder 2003; Belcher 2003; Dove 1993) and engage in further alternative income-generating activities (Thoms 2008). Therefore, the wealthy and elites are able control production (Cook & Yamagishi 1992; Markovsky, Willer & Patton 1988).

In this chapter, I explore these theories and unpack access in the rattan GPN by first analysing labour and social relations in Utani in Section 5.1, then understanding authorities over rattan in Section 5.2. I turn to market access in Section 5.3 and wealth and capital as mechanisms of access that I understood (based on theory) would lead to increased benefits for specific actors in Section 5.4.

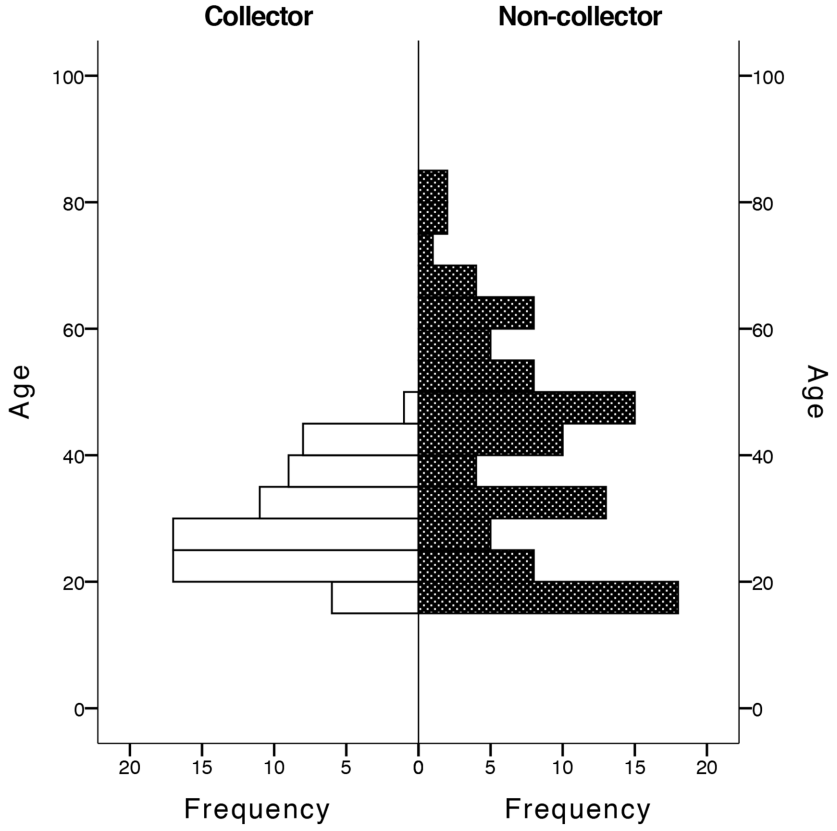
5.1 Labour and social relations in the forest

Before discussing how labour is organised in the forest, I first discuss some factors that constrain labour relations. Sub-section 4.6.1 described the process of rattan extraction, with an emphasis on the physicality of collecting rattan. The processes demanded by the materiality of rattan shape labour relations in important ways. First, they restrict actors to those who are physically able to collect rattan. Second, the long collection treks and nights in confined spaces required for rattan collection go against customary gender relation customs in Utani. I look at these two issues before discussing the organisation of labour.

5.1.1 Materiality of rattan limits the actors who can benefit from it

The biogeophysical properties of rattan shape the context in which actors use mechanisms of access. Rattan entangles itself at great heights above the forest floor, grows deep in the forest, regenerates over several years, protects itself with a thorny sheath, and is generally laborious to extract from the wild, as discussed in Section 4.2. These aspects of rattan limit the extent to which individuals have the ability to provide the labour required for rattan extraction. The physicality of labour prevents older collectors benefiting from rattan. There were only eight collectors in Utani over the age of 40, representing 12.5 per cent of the total age group. Only one man out of the 43 in the village over the age of 50 (2 per cent) still collected rattan. Figure 5-1 shows all men (aged 15 or older) in Utani and Desa Dua, grouped by age and whether or not they collect rattan.

Figure 5-1: Rattan collectors and non-collectors (men age 15+) in Utani by age

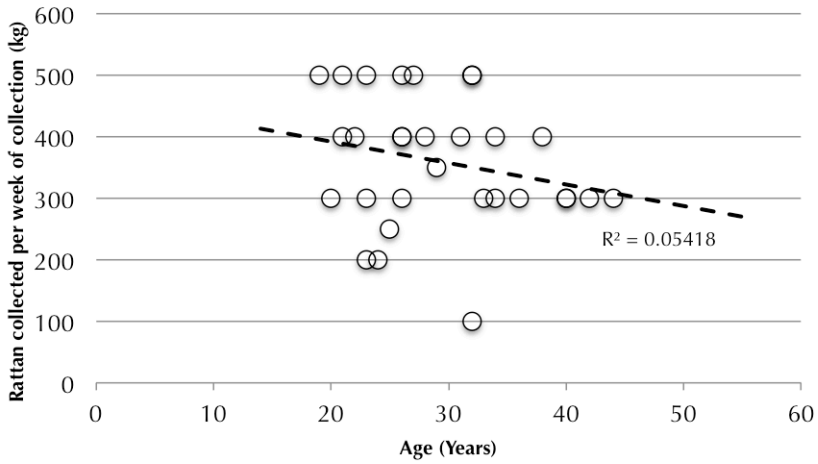


Source: household survey (n=172)

The peak age range for rattan collection is 20 to 30 years, as shown in Figure 5-2. After 30, there is a sharp decline until 45 when there are almost no rattan collectors. Rattan collectors attribute this to the physical demand of the practice of collecting rattan, for one, and second to the preference that rattan collectors have to do other activities, especially cacao production, which they move to as they get older.[44] Productivity declines after age 32 from a height of about 500 to 300 kg per week. Upon 'retirement' from rattan collection, men focus on cacao production, which they are able to finance largely through rattan collection over the years.

44. Although most rattan collectors, of all ages, indicated that they would rather do some other kind of activity, the need to do so becomes more pressing as collectors age and the physical requirements of rattan collection become increasingly challenging.

Figure 5-2: Rattan harvested per week of collection by age



Source: Interviews (n=30)

5.1.2 Gender relations limit the actors who can benefit from rattan

Women are not represented in rattan collection in the fieldwork areas due to cultural mores relating to the biogeophysical properties of rattan. Villagers, women and men alike, were confounded by my questions as to why women did not collect rattan. Women most often responded in laughter at the absurdity of the idea and expressed sentiments captured by one woman in Utani, "why would we want to collect rattan?" I have already discussed the physicality of rattan harvesting, and shown that it is not a desirable activity even among rattan collectors. Men tended to explain the exclusion of women as a cultural constraint, referring to the camaraderie in the forest. They explained that "we are in the forest for a week a time. It would not be acceptable for women and men to be in the forest together with someone who is not their spouse." Women and men both explain that women take care of the house and children whilst men are in the forest, so they contribute together. Using informal enquiry, no women identified as wanting to participate in rattan collection and most women felt that they had sufficient control of the financial proceeds from rattan that they felt that they benefited as much as the men through rattan collection. They also prefer that their husbands would not have to be in the forest for a week at time so they could help more with the children. Women periodically stop by the camp in the daytime, especially when the camp is on the way to the farm, but always leave before nightfall. Therefore, women are prevented from benefiting from rattan insofar

as the biogeophysical properties of rattan make it particularly unattractive to women within the socio-cultural context due to requirements for intensive labour away from the village.

5.1.3 Organisation of labour

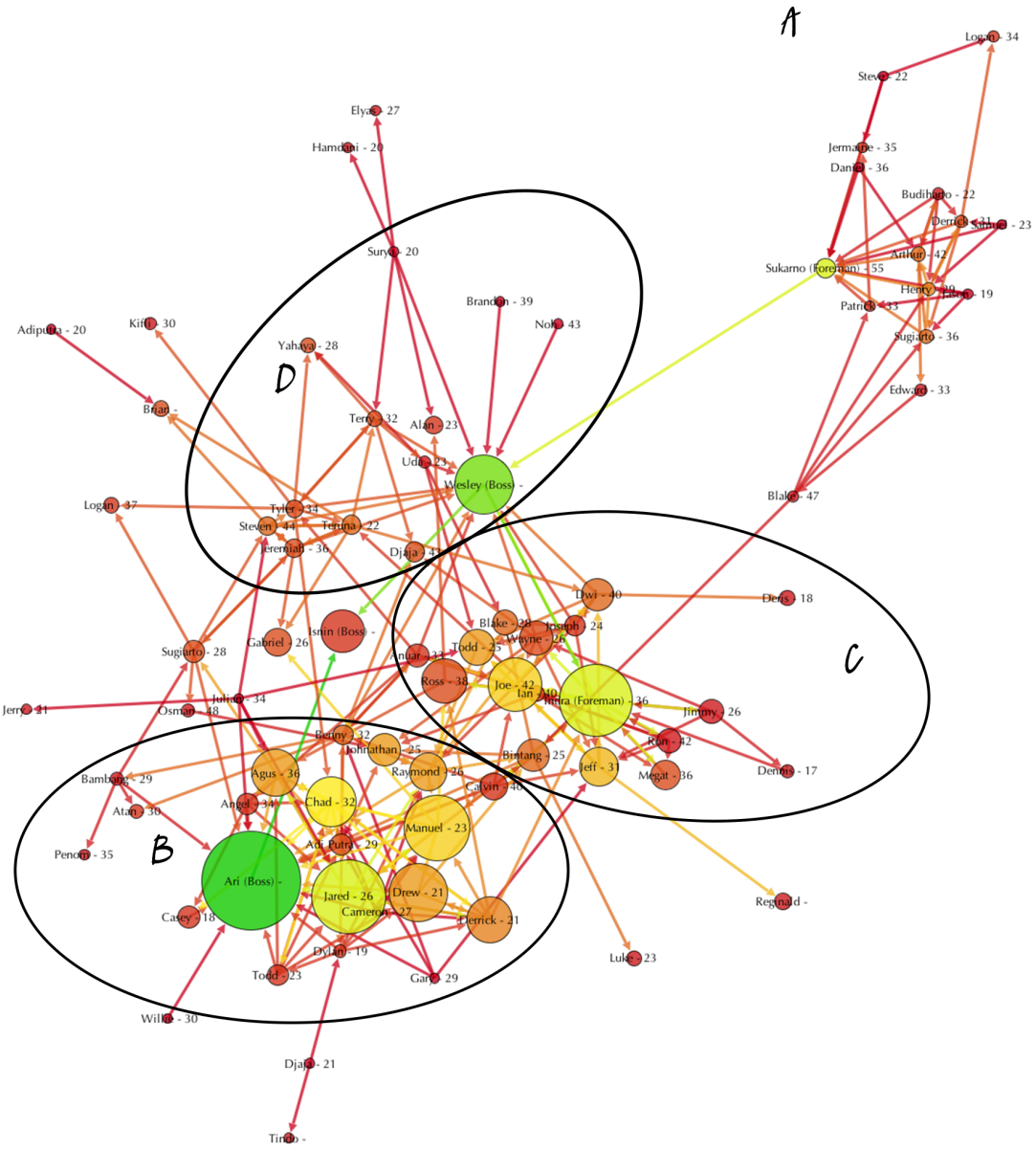
The organisations of labour is a complex set of linkages among collectors and foremen in Utani and Desa Dua, bosses in Belia and processors in Palu. In this sub-section, I first analyse the social and labour relations within this network, then explore the ways in which bosses develop the loyalty of collectors. Finally, I take a look at some of the changes in the structure of organisation of labour that have taken place over time, and some of the drivers behind those changes.

Social and labour relations in the village-level network

Groups of rattan collectors are formed informally and generally start with a core of friends and relatives. There are few motivations for excluding an individual collector, considering that each collector sells whatever he collects and the actual process of collection can be done alone from the base camp. Therefore, even collectors who are not well-liked or are considered by other collectors as 'weird' or 'lazy' still have the opportunity to participate. Speaking of one such Utani resident at an informal gathering at the base camp one night, "even though he is weird, he is still welcome to join us. There is no one that we say cannot join us if they want to."

Figure 5-3 represents the ways in which collectors are organised. The figure shows collectors, foremen and bosses as nodes, sized by eigenvector centrality and coloured by indegree (the number of times the actor is mentioned by other actors). Larger nodes indicate higher degrees of centrality and colours range from green (high clustering coefficient) to red (low). Edges (lines) between actors signify relationships of sale (market mechanisms) and collection (labour mechanisms) and are directed (with arrows) based on actor mentions. I asked actors with whom they most frequently collect rattan and to whom they sell.

Figure 5-3: Rattan collection groups



Data source: interviews with actors. Pseudonyms and ages are noted when known. Bosses and foremen are bracketed. Larger node= higher eigenvector centrality. Green is higher indegree and red is lower.

The most clear clustering is among villages with Desa Dua represented in Cluster A in the upper right of the figure and Clusters B, C and D (circled in black) in Utani. There is only one non-market link between the villages, which is based on a family tie (actor 25:47). The Desa Dua cluster involves Sukarno, a foreman who sells to Wesley. In Utani, there are three main clusters. Cluster B is comprised of collectors who usually sell to Ari, shown as the largest node in that cluster. Cluster C is comprised of those collecting with or working for Indra, the foreman. Cluster D is a

less dense cluster that focusses on Wesley and the collectors who sell directly to him. Wesley also buys from Sukarno in Desa Dua. Wesley and Ari both also sell at least some of their rattan to Isnin, Wesley's cousin by marriage. While the clusters are evident using a Yifan Hu (Hu n.d.) network layout in Gephi, there are several edges between actors in Clusters B, C, and D, meaning that the clusters are not particularly distinct from one another and there are close labour relations among individual actors in several clusters.

Of the bosses, Ari is more embedded in Cluster B than Wesley is in Cluster D, which collectors attribute to his being of the same religion, where Wesley is Muslim, but considered a "fair rattan weigher" as one collector described him. Some collectors felt that they can better trust someone of their own religion, and others were only concerned about his business practices. In one informal meeting with two collectors, two men who sold to different bosses argued whether or not Wesley is more fair than Ari. After some debate, one said "well, it doesn't matter. Ari is from the same church as me so I prefer to sell to him." Isnin was not mentioned by any collectors, and was only mentioned by the other bosses who also sell to him. He is, according to the other bosses, the biggest boss in Belia, but works with other villages and builds volume by buying from Wesley, Ari, and one other Belia boss.

Besides the foremen and bosses, the most central (green or yellow) actors tend to be the ones who are particularly social, often organise the groups, are regular collectors or are good cooks. Joe, Jeff and Todd in Cluster C are all known as good cooks according to interviews. Regular collectors know that these actors contribute to the team in the basecamp, resulting in higher levels of eigenvector centrality. In Cluster B, Jarred is often responsible for organising the crew and Chad and Manuel are known as good cooks. I analysed Figure 5-3 for correlations within clusters by age and family relations (including through marriage), but found no correlation for either one. The groups are formed ad hoc, with no evidence of exclusion or preference. As one regular collector explained, "anybody who wants to join can."

As Figure 5-3 shows, there are some clusters, but there is also permeability among clusters, so there are collectors who often collect rattan with members of other clusters and the tendency to collect with collectors with the same boss has many overlaps with other social relations or personal decisions about with whom an actor collects rattan. These decisions were often based on the timing of the collection in relation to the personal needs of the collector. For instance, one crew during my fieldwork had timed their collection for the sale of rattan to finance their friend's wedding. This crew, therefore, comprised of close friends of the groom-to-be and his direct family, along with a few other collectors for whom the schedule was suitable. Another crew was preparing to collect two months later and even brothers split into different crews depending on their personal preferences even though they often collect together. I suspect this may also be a way of dividing family labour so there are men available to work on farmland, but I did not confirm that during fieldwork. The network structure can therefore be described as polycentric at the collector level, with many collectors having relationships with many other collectors.

Once a crew is established, the group appoints a negotiator. The negotiator speaks on behalf of the group with the boss and takes only his expenses for fuel as a fee. Collectors explain that the negotiator can be any member of the group. Negotiators are appointed partially on their ability to negotiate with the boss and partially based on who happens to be going to Belia and is interested to pay a visit to a boss. The position is malleable depending on the composition of the crew.

Some collectors appear on the fringes of Figure 5-3 with few edges. These collectors tend to only collect rattan when another collector collects. They therefore identify more with a specific one or two collectors than the group. These actors are usually less frequent rattan collectors. For example, one collector interviewed only ever collects when his cousin asks him to.

Network structure is focussed around the bosses and foremen as shown in Figure 5-3 (cooks and organisers have higher centrality than most collectors, but their roles are fluid and change with each crew, whereas the foremen and bosses are permanent roles). Of the five foremen and ex-foremen in Utani, all but one are immigrants and

have married an Utani woman. These actors were the best prepared to deal with the 'outside world' and often brought assets with them. One ex-foreman said that because he had worked in construction in the neighbouring town, he had better access to the knowledge of how to make connections and build business relationships than most others in Utani. Another had lived in Belia before getting married and had exposure to trading there.

Collector loyalty for bosses

Foremen and bosses cultivate collector loyalty through providing loans (both short term and long term). This loyalty is strengthened by an appreciation that the collectors have for the bosses "helping us" as one collector put it, referring to loans that were issued to the collector by the boss in the past as well as the advance prior to collection. Even after the loans are repaid, the collectors feel a sense of loyalty and trust for the boss. This relationship is difficult to replace and both the collector and boss consider it mutually advantageous. From the collectors' perspective, they recognise that they lack the social relations and market knowledge to sell directly to the processor. They also perceive the lending facilities and advance payments as 'help', which creates a moral obligation to repay the boss through continued supply of rattan. From the bosses' perspective, collectors (to whom bosses refer as their *karyawan* or 'employees'), provide the assurance that they can fulfil large orders in the hundreds of tonnes of rattan and proceed to hire trucks and commit to supply obligations.

At the time of the fieldwork, almost all collectors were indebted to their boss or foreman. Before the men embark on their rattan collection expedition, they receive an advance from the boss in Belia. The advance was typically around a hundred dollars and was used to purchase the basic necessities for rattan collection: rice, sugar and cigarettes. Foremen extract fees of Rp.100/kg (USD 0.01), about 7.5 per cent of the sale price (Rp.1300/kg or USD 0.13), which collectors accept as reasonable in exchange for not having to deal with the complications of negotiation, sale and collecting payment. "The advantage of having a foreman", explained one collector, "is that it is less complicated for us, but in the end, most of us prefer to not have a foreman even though it is less convenient, so we can get a better price." Debt

repayment came out of the proceeds of the sale and was subject to negotiation between the borrower and creditor. No interest was charged and repayment terms were left open.

Larger loans were given to collectors by bosses and foremen. From local foremen, this sometimes included land. From bosses, cash loans were provided to their 'employees'. According to one boss, loans used to be bigger, but now are usually for "a few million up to 10 million [rupiah] to cover daily expenses" (USD 300-1000). According to interviews with bosses, they don't usually ask for what the loans are used, but estimate that about 90 per cent of all collectors have outstanding (interest-free) loans at any one time. In conversations with collectors about loans, while small loans could be obtained from bosses, bigger loans are secured with the cacao traders in Belia, who front the cash to purchase motorbikes, for example, and retain the registration documents until the loan is repaid. The system is similar to the rattan boss loans in that they have no interest and repayments are through the sale of cacao.

Changes in the organisation of labour over time

Utani went through a transition that started in 2004 and substantially changed the means of benefiting from rattan through access to markets. Before 2004, all rattan was collected under the control of foremen, of which there were between two and three in Utani at any point in time. Collectors had limited contact with the bosses and did not have the confidence or knowledge of how to negotiate with them. According to interviews with collectors, the foreman would call his crew, decide on the collection location, set the schedule, arrange the inputs, provide the advances and arrange the sale.

A series of events led to the changes in which collectors became free to negotiate directly with bosses for the sale of rattan cane. First, there were a number of push-factors related to labour relations between the collectors and foremen. Collectors perceived that the foremen were extracting too high a price from the traded rattan, and were charging exorbitant fees for the costs of inputs, mostly rice, cigarettes, and sugar, consumed during collection, which was deducted from the final sale price. As one collector phrased it, "the foremen were always playing with money." A former

foreman admits that he experienced lash-back from collectors because he pushed them too hard, which ultimately caused the collectors to seek alternative labour relations and market connections.

Second, the event that precipitated this shift in 2004 was the re-routing of the narrow and winding path to Utani, which was previously navigated on horseback or foot.[45] This reduced the travel time to Belia to two or three hours, where it was previously a one-day journey. Within two years, according to local residents, there were no more horses left in the village and most families had a motorbike (ostensibly obtained by credit). It opened access to two points along the road where cellular signals could be obtained (now only 20 minutes from the village), which facilitated communication with bosses and made obtaining supplies much less of a chore (cf. Sikor & Pham 2005 for similar findings on how road networks were instrumental for opening market access to remote communities).

These two factors of technology facilitated by the new road, in combination with the dissatisfaction with the foremen, made direct communication between collectors and bosses possible for the first time. Direct relations with bosses provided access to capital in the form of advances and *ad hoc* group formation ensured accessible market information by all collectors. Essentially, increased access to the social and labour relations with bosses eliminated the need for foremen in the GPN in Utani, which explains why no new foremen have emerged since the introduction of motorbikes and cellular phones.

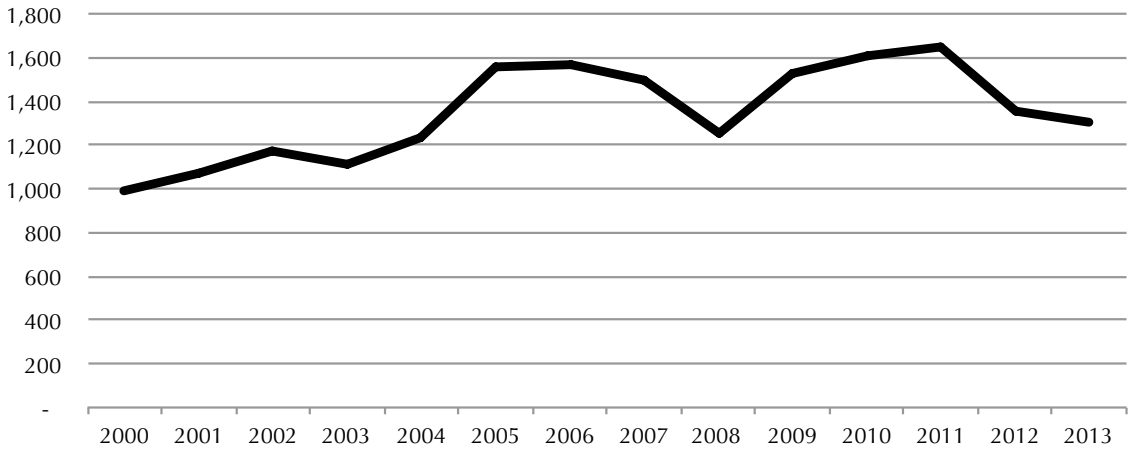
All but one Utani foremen "retired"[46] between 2004 and 2011. The prices of rattan were on an upward trend in 2004 and 2005 (see Figure 5-4) when three foremen retired, which supports the ex-foremen's statements that rattan pricing was not a factor in retirement. Chapter 8 discusses rattan market price fluctuations, which are related to international markets and Indonesian trade policies, but here it is

45. Villagers recall that horses were all sold within a year and that they bought motorbikes by all means possible, many securing loans from the buyers of their products (rattan or cacao) in Belia.

46. Foremen use the word "retired" to explain that they are no longer involved as a foreman. As explained here, there were several factors that indicate that their role in the GPN was no longer needed.

important to note that prices rose with the increased demand for rattan in 2004 and 2005 and fell in 2008 with a ban on the export of rattan from the island of Sulawesi in an attempt to strengthen regional furniture manufacturing, and falling again in 2012 at the start of the export ban.

Figure 5-4: Utani rattan prices 2000-2013 (2013IDR/kg)



Data source: interviews with bosses and collectors

I found no evidence of resistance from the foremen during this shift, for individual reasons. The largest foreman claimed that he was getting tired of the rattan business anyway. He said that there were too many risks and that he had lost a lot of money on a river cresting too high, which resulted in the loss of over nine tonnes of rattan getting washed away in the river. Since he had already given advances to the collectors, this resulted in a substantial financial cost for him. He also grew tired of labour relations and managing the collectors, many of whom were in default for outstanding loans of two to three million rupiah (USD 200 to 300). He used to sell directly to Palu and avoided the bosses in Belia based on the connections he made whilst working in construction in Palu previously. The losses due to bribes paid in transportation were also getting increasingly worse, citing up to one third of his profits were eaten into by bribes paid to police during transportation, even when documentation was in order. This problem was also confirmed by current bosses through interviews.

Another ex-foreman continued to collect rattan and organise crews. In his mid-forties, he was nearing retirement from rattan collection and he too had found the management of the collectors to be too difficult on an ongoing basis. He claims that

"I was just too tired" to continue acting as the foreman. In a small village like Utani, people prefer to avoid conflict and for him, it wasn't worth the battle to resist the decreased reliance on foremen, especially since he had other things to do. All ex-foremen, and even the remaining foreman, put most of their time and energy into cacao crops. They are among the biggest cacao farmers in the village.

A highly informal network of rattan collectors has resulted in the polycentralisation of village level GPN governance. Under foremen, rattan collection was organised under three to five individuals. Now it is open with no clear leaders or significantly more central collectors. Correspondingly, there is no evidence of elite capture at the village level, with the exception of the one remaining foreman. All collectors have access to similar information and they create social contracts with bosses in Belia that favour no collector over another. They also respond to and operate under a similar set of authorities over forest resources. Sustained elite capture has been limited in part by the access to information and markets discussed, and in part due to the geographical presence of rattan in the forest over which particular authorities have jurisdiction. I discuss these authorities next.

5.2 Authority over the forest

Any physically fit man can engage in rattan collection in Utani and Desa Dua. I found no exclusion based on ethnic, social or economic grounds. Any Utani resident has immediate access to collect rattan. Residency is a matter of establishing a dwelling or familial ties. All immigrants to Utani have come through marriage or professional posting, such as a teacher or pastor in the local church. Once married to an Utani, spouses acquire the same permissions to forest resources and land as an ethnic Utani. However, forest users must access forest resources through specific authorities. Access to the forest is controlled by two dimensions of authority: statutory and customary. I examine each dimension here and explore the tensions between the two in the second sub-section.

5.2.1 Statutory authority over Utani forest

The Ministry of Environment and Forestry (MoEF) is the legal controller of the land according to the Forest Law of 1999. This authority includes the protected forest (*hutan lindung*) and Lore Lindu National Park, both of which overlap with customary Utani forest boundaries. The MoEF has the authority to grant or deny access to the forest through usury permits and temporary visitation permits in the case of the national park. MoEF's authority in the park means that no one is permitted to extract rattan from the forest with the intention of selling it. In effect, this means that villagers are legally excluded from the benefits of the forest as they only access rattan in order to sell it, an important part of their livelihoods, and eat small quantities of young rattans. In terms of the protected forest outside the national park, Utani has no formalised rights, as it does not have a permanent usage permit. In practice, explained in this sub-section, the community uses the forest in accordance with customary access rights without interference from MoEF, according to local residents.

With very little awareness or involvement of collectors, the bosses and processors arrange rattan collection permits[47] for each 20 tonnes of rattan collection (ostensibly collected from outside LLNP), which must be supported by the identity cards of at least five collectors who are considered by the MoEF to be local to the harvest area. The application is made by the processor in Palu and the bosses use the permit while the rattan is in transit from Belia to Palu as proof of legal collection.

5.2.2 Customary authority over Utani forest

The second dimension of authority over forest access is the customary. Under customary practice, Utani controls land both inside and outside the park (and even MoEF maps recognise the forest inside the park as claimed by Utani). Due to the remoteness from other villages, this authority is uncontested by other tribes[48] and

47. The permit includes permission to extract and confirmation of origin (Surat Keterangan Asal Usul- SKAU) as mandated by the Ministry of Forestry in decree No. P.51/Menhut-II/2006 for all forest products.

48. Territorial wars were settled hundreds of years ago according to customary leaders.

includes a vast amount of land, which is estimated at around 8000-10,000 ha[49]. For the just 87 households that reside in Utani, the size of customary forest is much larger than most villages in the area, credited to their ambitious ancestors who were victorious in battles over land. Residents have customarily used the land for swidden agriculture, paddy cultivation, and the collection of non-timber forest products, primarily rattan.

Both the original and current villages are within the customary use area. The Village Head works together with customary leadership to govern the forests. In practice, they report having very few problems with villagers contravening customary regulations, which are unwritten. These rules restrict certain activities in particular areas of forest (usually because it protects a water source, has customary significance or is haunted). The other main rule is around cutting trees, which can only be harvested with prior approval and for use within the village. Otherwise, trees with trunks more than about 20 cm cannot be cut for any purpose (the diameter is measured as the space between hands, which is now broadly understood as about 20 cm). The principle of this customary rule, stated by several respondents, is to "protect the forest for our children and grandchildren".[50] On probing, it is not specifically designed to protect rattan inventories, but rattan collectors acknowledge that it is beneficial for rattan as well. Regular use of the forest does not require permission from leaders so long as these guidelines are followed.

Non-Utani access to Utani forests

Non-Utani residents frequent Utani forests to collect rattan. These collectors must make a formal request to the Head of Village. Six villages regularly seek permission to access Utani rattan. A head tax is charged at Rp.50,000 (USD 5) per collector per week, which is used by Utani for general development. Other than the fee, there are few conditions put on outsiders except that they are required to follow customary rules mentioned above and are never permitted to enter LLNP, for fear of creating friction with the authorities. Outsiders are only permitted certain areas of forest that

49. The Department of Agriculture lists 9500-10,000 ha and the National Statistics Agency (BPS) registers just under 9000 ha. The Ministry of Forestry maps state 8000-9000 ha.

50. An almost verbatim use of the Ministry of Forestry messaging around forest conservation.

are not used by Utani residents. They are monitored by Utani villagers and violations of their terms could be reported to the forest police, but this has not been done in recent memory. Utani's customary authority is used to control who from other villages has access to rattan in the forest. Although I did not find any instances of outsiders being refused access by Utani, this could be because the frequencies of collection have been long established and no village attempts to challenge the status quo of two collection teams per village per year. Nevertheless, Utani leaders maintain the ability to exclude others from the forest, and are very specific about what areas of forest may be accessed by Utani residents and areas from which others are excluded. This same authority protects rattan in the wild from being harvested by other crews, like those who might be hired from Cirebon to obtain rattan at reduced costs that bypass processors.

Tensions between customary and statutory access and the creation of the national park

Utani residents have a strong sense of social identity and perceive a right to access protected forest land on the basis that their ancestors (parents and grandparents) were duped into signing agreements on the borders of the national park. By their own accounts, the Ministry of Forestry presented complex maps and diagrams that residents did not understand, but agreed on the insistence that their agreement would mean preservation of forests for their children and grandchildren (see Image 5-1 as evidence of that continued messaging).

Image 5-1: Signage indicating the borders of LLNP

"Save the forest and water for our children and grandchildren" translation by author. Source: Author

When the borders of LLNP were being confirmed by the MoF in the late 1970s, one savvy young man who was (and still is) the local expert on the Utani forest was accepted to guide the surveyors to place the markers. Because he could see that the larger the park, the smaller the available resources for Utani, he misled the surveyors over additional crests and rivers to ensure that the park area was minimised. To this day, so he claims, the marked area is smaller than the mapped area, thereby legitimising (in his mind) Utani's claim to that forest land.

There is a tangible underlying fear of the forest police, especially among older collectors who recounted stories of being victimised for accessing forest resources. Until 2009, the forest police made regular visits to Utani and LLNP. Confrontations involved intimidation (reported by villagers as "yelling at us") and the destruction of rattan harvests. There are accounts of collectors from other villages getting arrested. At the time of fieldwork, there was almost no interaction between Utani residents and forest police. The local forest officer (based in Belia) had never been to Utani

although at his post for two years already. In an interview with him, he suggested that the change was a result of reductions in human resources available to the Ministry of Forestry and a policy change that has blurred the ability of authorities to positively identify transgressors, but he could not confirm what that policy change was. He alone is responsible for 8000 ha of national park. He therefore tends to go after less labour-intensive monitoring, which is focussed near his home and office, just a few hundred metres from the main road where local farms border the park.

A second factor in the decreased forest policing presence is a re-interpretation (or application) of law 41/1999, which confirms that customary users have the right to access non-timber forest products for personal use. Other villages neighbouring the park had conflicts with the national park authorities that peaked in the mid 2000s (cf. Li 2007). While this law is of little utility to Utani residents, whose only personal use for rattan is harvesting the young bulbs as a food source, it did make identifying transgressors more challenging. Although permission is supposed to be sought prior to harvesting for personal use, the local forest officer had so far received no requests, but it is used by some villages as a rationale for entering the forest and the forest police have only been able to reprimand collectors for not obtaining permission in advance. Overall, forest police are very cautious about making arrests or creating friction with communities, having learned from past experience in other villages, which resulted in significant violence in come cases (cf. Li 2007). This is consistent with Utani claims that the forest police are "afraid of the community", explaining why the forest police chose to address more clear issues such as cultivation in the park.

Maintaining customary access within the national park

One of they key differences between the benefits incurred by Utani and Desa Dua is that for Desa Dua, there are primarily financial benefits from rattan. Utani, in addition to financial benefits, has a much greater benefit of its claim over the forest. By continually using the forest and exercising customary authority structures over statutory law, the act of collection of rattan maintains the Utani claim over their forest and is perceived by village leadership to strengthen claims of access through social identity. As the Village Head explained, "we don't even know how the

government considers this forest. [when asked about the forest designation by the Ministry of Forestry] We don't know about that. It is not really important. This is [Utani] forest. Our grandparents used it, our parents used it and we use it. Those kids who collect rattan are using it like their parents and grandparents did. Everyone knows, from all the other villages, that this is our forest."

Women's customary authority over access to the forest

Finally, there is another type of customary authority with access control over who is able to access the forest. Culturally, spouses must ask his partner's permission to leave the village. For men, this means asking their wives' permission to go to the forest. She has every power to decline his request and the men are clear that should she refuse that he collect rattan, he cannot join the crew. "It is impossible", one collector responded when asked if he could collect rattan without his wife's permission. "If she needs me at home, for whatever reason, I can go wherever I want but I have to return to the home at night." Women welcome the extra family income and seldom refuse, but it happens, especially when a couple has a new baby. The majority of the collectors' advance goes to the man's wife since regular income generating activities will be delayed during rattan collection. Further, upon final payment after the sale of rattan in Belia, the men are expected to hand the proceeds of the sale over to their wives for management of the family finances. Rattan collection expeditions are timed so that a surge of income comes in before Christmas, and usually for other special events such as weddings. According to respondents, women must see the benefits and hold the proceeds (ostensibly in the form of cash). Men must ensure that the benefits compare well to alternative activities in order to maintain their access to the forest resources through their wives.

5.3 Markets and the moving forest

Rattan collectors claimed on several occasions that, in the words of one collector, "the forest is moving farther way from the village." While on the surface a peculiar statement, the collectors are referring to agricultural expansion around Utani and patterns of exploitation of rattan. The forest is not moving, but being reduced– or more specifically, displaced by cacao plantations as cacao becomes a more effective source of benefit to forest-based actors than rattan. Although current levels of

agricultural expansion are now limited by the areas of land allowed by the Village Head and customary leaders[51] to be used for agriculture, there had been significant expansion over the last 15 years as cacao became an increasingly popular crop and prices were high.[52] There are no historical records of how land has been allocated for expanded for agriculture, but according to the reports of Utani villagers, cacao production started in the village in 1995 and has been expanding ever since. Seventy-nine of the 82 (96 per cent) households interviewed in Utani had cacao trees in 2013.

There was a government programme for the promotion of cacao in the area, but not in Utani, that started in the early 1990s. A rattan foreman was living in Palu with his family and learned about cacao markets through word of mouth. He had already inherited land in Utani through his wife and purchased more with the proceeds of his construction work in Belia and his rattan foreman activities. He was the first to start cacao farming and others soon followed, almost all reporting that they used formerly unused or cash-cropping land for cacao expansion, including permitted deforestation, but there have "always been customary laws to prevent [large-scale] deforestation" in Utani, according to one local leader. The ex-foreman has become the wealthiest person in Utani, which he attributes to his exposure to knowledge of markets and alternative income generation activities. These alternatives also positioned him to become a rattan foreman, and to choose to stop it, concurring with Cook and Yamagishi (1992) that those with alternatives are able to manoeuvre into positions of power.

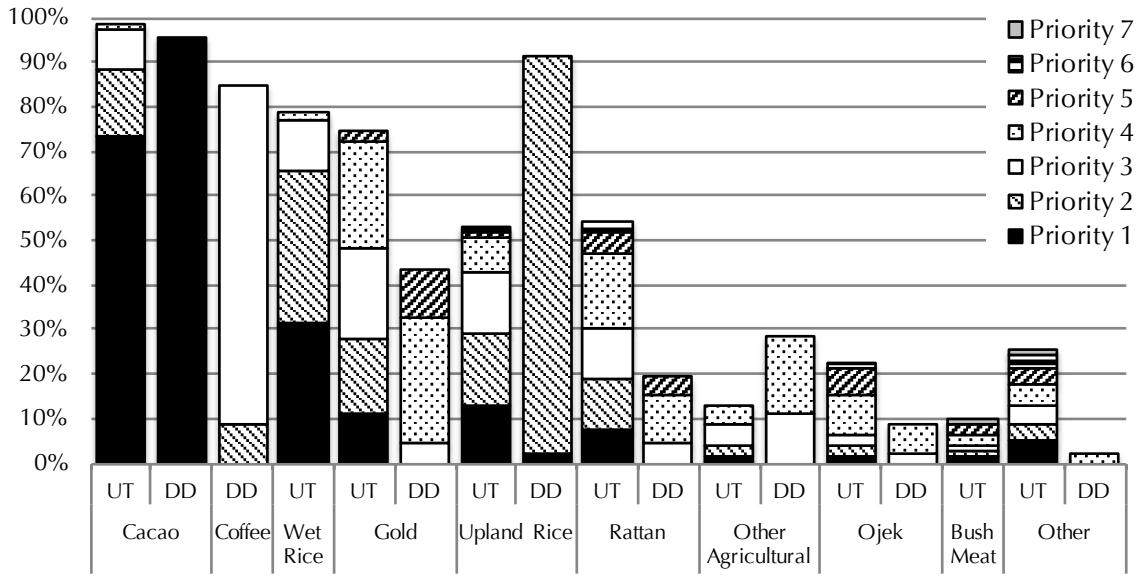
At the time of fieldwork in 2013, cacao was the most important livelihood activity in both Utani and Desa Dua. Figure 5-5 shows that cacao ranks highest in both Utani and Desa Dua. Wet rice is second most important in Utani, but there are no rice paddies in Desa Dua. Gold is more important in Utani because the river in the Utani forest is a better source of gold than Desa Dua sources. Rattan collection is the

51. The Village Head reports that all land in Utani has now been allocated and there is no more land that can be allocated for individual use.

52. Cacao prices reached an 18 year high in 2003, then dropped substantially in 2004 (Abbate 2007).

fourth most important livelihood activity in Utani and sixth most important in Desa Dua. Rattan is a first priority for six households in total, all of which are in Utani. Overall, though, almost 54 per cent of households in Utani place rattan collection in their top seven priorities compared with 20 per cent in Desa Dua. Utani's authority over the forest has encouraged Desa Dua residents to explore other income generating activities. Desa Dua offsets its lack of rice paddy with alternative income from coffee production, where Utani residents claim to prefer cacao to coffee and "don't know about growing coffee anymore" since they shifted to cacao exclusively and only grow very small amounts of coffee for personal consumption.

Figure 5-5: Livelihood priority rankings in Utani (UT) and Desa Dua (DD) by household



Sourced from structured interviews Utani n=79; Desa Dua n=46; displayed as a percentage of n. (ojek is a motorbike taxi)

According to interviews with several cacao farmers, a farmer can harvest about 200 kg of dried cacao per hectare per month. The current sale price is Rp 16,000 to 18,000/kg, or about USD 1.40/kg. That amounts to Rp 3.2 million per month per hectare of land or Rp 38.4 million (USD 3200) per year. Farmers report that past prices have been up to Rp 27,000 per kg as recently as 2008, which motivated more land use conversions.

Compared with rattan collection, cacao production is quite lucrative. Rattan collectors typically collect about two tonnes for each sale. The sale price in 2013 was Rp 1300/kg, totalling about Rp 2.6 million. Collectors typically collect two times

per year, bringing the total to Rp 5.2 million (USD 435) per year. Villagers are therefore financially motivated to shift their focus to cacao, not only in terms of annual revenues, but the regularity of income. The challenge for them is acquiring the capital required to purchase land, which they obtain over time through rattan sales. Rattan is ostensibly a means to that end. Men are pushed into rattan collection due to the lack of ability to benefit from cacao before they can acquire land and purchase seedlings (cf. Burkard 2007).

These experiences are echoed in nearby villages. Although rattan collection is not a primary source of income for families, 78 per cent of households in the villages around Utani are engaged in rattan collection (Juhrbandt 2010). Rattan alternatives involve conversion of forest to rubber, cacao, and oil palm plantations. The prevailing discourse among rattan collectors in Utani is that rattan is playing a decreasing role in their livelihoods. They have aspirations to increase cacao production as much as possible. In other areas where rattan is cultivated, rattan producers are price-motivated to convert to oil palm, which promises higher profits per hectare (Belcher 2001; Belcher, Imang & Achdiawan 2004).

Most villagers orient their income-generation activities around meeting daily needs, procuring some assets such as motorbikes and houses or home improvements, and acquiring cacao seedlings or land. Cacao farmers put minimal effort into managing their plantations and rarely use external inputs. The sentiment of many was captured by one farmer who said, “medicines and fertilisers are too expensive.” This, despite what several farmers confirmed as up to 50 percent pre-harvest losses (mostly fungal infections: black pod and canker). Some farmers were even aware that burning the infected pods would reduce the black pod fungus, but none incorporated the practice into their farm management. Their focus is squarely on expanding the number of cacao trees under their management, which results in extensification of land used for cacao trees.

Over the past 15 years, rattan has been found further and further from the village, which makes it even less attractive to new generations. Many young men show no interest in farming or rattan collection. They prefer to provide transportation services

(*ojek*), which allows them to collect Rp 1000/kg for transporting goods to Belia (usually about 50kg each way to a maximum gross revenue of USD 10/day), taking orders from people in the village for supplies, and spending the day in Belia rather than Utani.

Interest in supplying rattan has also reduced in comparison to alternative income-generating activities as Homma et al. (1992) also found. A cacao trader in Belia, who is among the biggest buyers of cacao but has never been able to get into the rattan markets because of the difficulty to enter as an outsider, claimed that "10 years ago there were rattan bundles lining the streets and hundreds of trucks per week, but now it is too hard to access and they have to go too deep into the forest... They are better off producing cacao." Prior to the emergence of cacao markets, rattan played a more major role in the income-generating activities of Utani villagers. In Desa Dua, there is no more standing rattan and little forest left because the villagers have cleared what little forest they had for expansion of cacao, coffee, and dryland rice.

There remains more inventory of rattan in the forest than the market can absorb (ITTO 2011) but convincing collectors to labour over rattan collection for a fraction of what they can earn producing cacao (or in other villages coffee, rubber, oil palm etc.) is becoming increasingly difficult, especially when orders are not enough to support full-time rattan collection. I discuss the demand side in Chapter 8. Building on Barham et al. (1994), the biogeophysical properties of rattan, mean that rattan extraction depends on community forest users in Central Sulawesi and should the market become unfavourable for them, there are no corporate replacements that can replace this important function within the GPN. Since the prices of rattan from Utani remain low, collectors move to other activities. So far, the industry has not responded by increasing farmgate prices of rattan. Collectors can tolerate some delays from an inventory perspective, because rattan does not have a specific collection season, and only continues to grow in the forest. Older rattans gain features that will make the more favourable in the market, but the extent to which collectors will benefit from this is unclear.

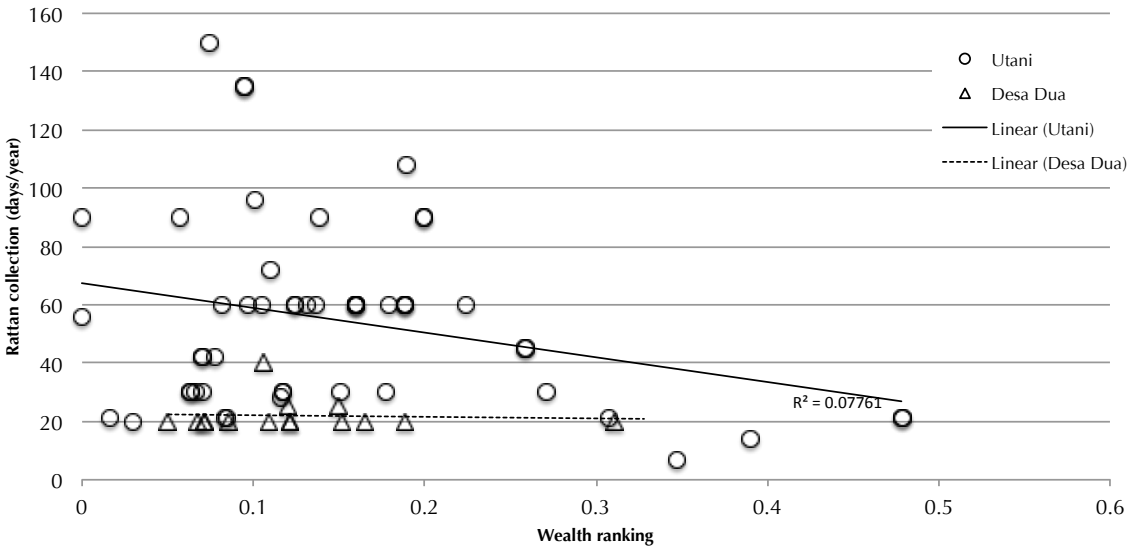
Wild rattan, like many other NTFPs, is an important source of saving for special events or times of need (Belcher et al. 2005). Rattan is one of the few commercially viable products available in the area without destroying forests (Juhrbandt 2010), which is consistent with the claim that "the forests are moving" by Utani villagers as they, and those in neighbouring villages convert forest land to farmland. Although the value of rattan at the forest gate has not changed significantly over the past 10 years, alternatives have become accessible to Utani villages that present some financial and labour advantages over rattan, but require more capital than rattan collection does. This leads to a discussion on wealth and access to rattan, which I discuss in the next section.

5.4 Wealth and access to rattan

Capital has lost its leverage for rattan collection in the village. Prior to 2004, and the introduction of motorcycles and roads, the foremen were already in positions of privilege, as explained earlier in this chapter. Four out of five were immigrants to Utani, meaning that they had exposure to other places– frequently towns and cities. They had the knowledge, social connections, and financial resources that positioned them to benefit more from rattan than others. But the introduction of better roads, motorbikes and cellular phones levelled that playing field and provided Utani villagers better access to the same market relations, thus altering the labour relations in the village. With the introduction of the new technologies, collectors built relationships directly with bosses and obtained cash advances from them instead of from the foremen (in some cases borrowing from the boss to pay off the debt to the foreman). Capital then, at least within the village, lost its advantage since collectors could obtain loans and advances from outside the village. One boss commented that, "the advance is not really that important. [The collectors] have no need for anything expensive and they eat food in the forest or at home. It is just tradition really." Collectors state that the advance is important, but on questioning and analysis agree that if there was no advance, they could still collect rattan. "If we can get paid now or later, why not now?" exclaimed one collector. Therefore, there is no perceivable advantage that material wealth can provide that would better position more wealthy actors to benefit from rattan more than less wealthy actors within

Utani. Rattan collection requires no privately-held land and only simple tools. As I show in Figure 5-6, there are weak correlations in both Desa Dua and Utani between household wealth and frequency of rattan collection.

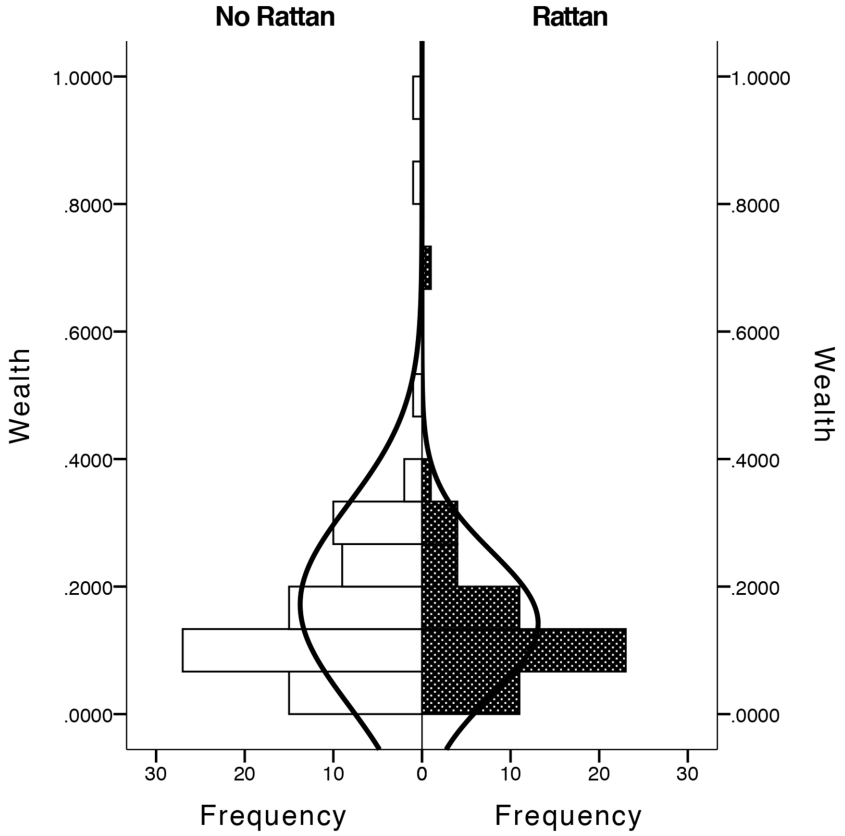
Figure 5-6: Rattan collection (days) by household wealth in Utani and Desa Dua



Source: household survey (n=86)

According to interviews with rattan actors, "the only people who collect rattan are those who have to collect rattan". This sentiment was echoed by several others and, as already explained in this chapter, rattan collectors prefer to engage with cacao production than rattan. As Figure 5-7 shows, households with members engaging in rattan are less wealthy than those who do not have members engaged in rattan. In Utani, the average rattan-engaged household is 21 per cent poorer than households not engaged in rattan and in Dea Dua that figure is 20 per cent. The one remaining foreman in Utani is represented in Figure 5-7 as a stand-alone wealthy household engaged in rattan and the Desa Dua foreman/boss is in the second most wealthy household engaged with rattan.

Figure 5-7: Household wealth with and without rattan activities in Utani and Desa Dua

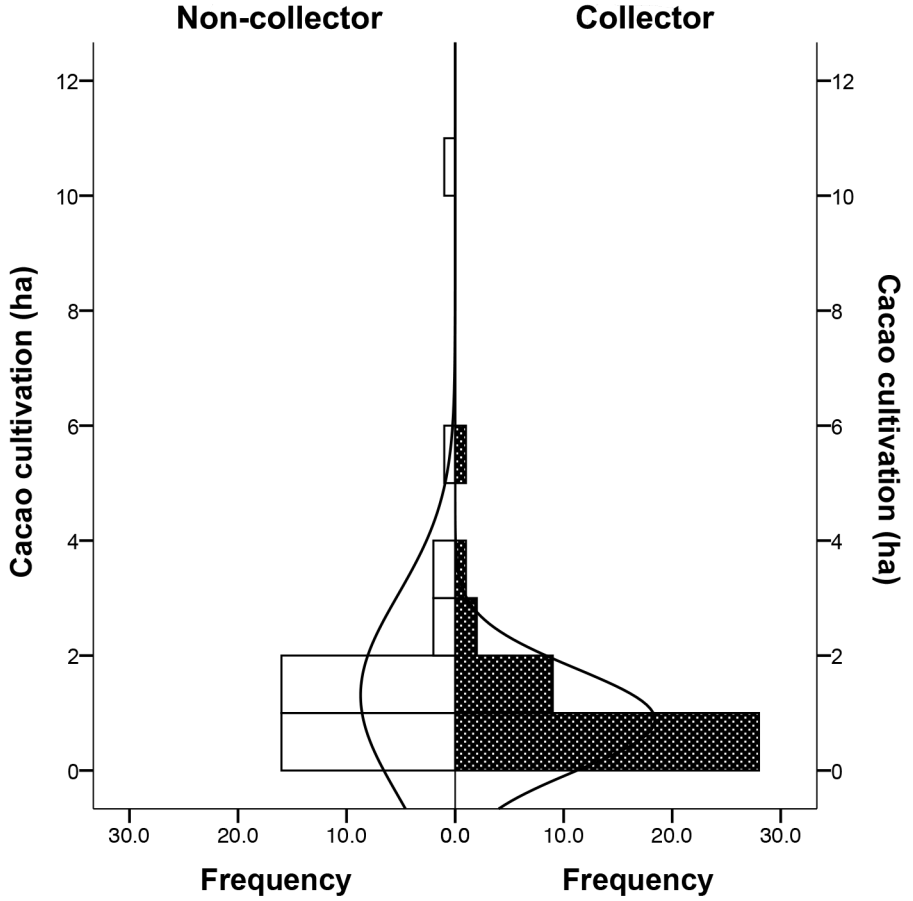


Source: Household survey (n=136)

Together, the analysis of these data suggests that although less wealthy households are more likely to have a member engaged in rattan collection, there is no evidence that suggests that the poorer the household, the greater the frequency of rattan collection– only the likelihood that they will collect it. These findings are consistent with other suggestions that poorer households tend to diversify their forest-based income sources to spread out risks (Sunderlin et al. 2010).

Specifically in Utani, land under cacao cultivation is the key variable that determines rattan collection. Figure 5-8 shows the relationship between rattan collection and cacao in Utani. In households with zero to one hectare of cacao under cultivation, there are more collectors than non-collectors, but as the amount of land under cacao cultivation increases, the proportion of collectors to non-collectors decreases. There is the same notable exception as Figure 5-7 in which a foreman has five to six hectares of land under cacao cultivation, as shown as a rattan collector of more wealth than others.

Figure 5-8: Land under cacao cultivation by households with and without rattan collectors (ha)



Source: Household survey in Utani (n=86)

This analysis shows that households benefiting from rattan within the villages tend to be less wealthy than households not engaging with rattan except for the foremen, whose involvement in rattan is decreasing as shown in previous sections. Therefore, I conclude that while higher levels of capital were once useful for some village actors to benefit more than others, access to technologies that facilitated market access have made capital less important to capturing the benefits of rattan. The extent to which capital facilitates increased benefits from rattan is contingent on other mechanisms of access. In this case, technologies, labour relations and market access mitigated capital.

Although capital has little, if any, influence on an actor's ability to benefit from rattan in a polycentric governance structure at the village level, it factors into actors' inclination to collect rattan. At the household level, of the ten households with the most cacao cultivation in Utani, four collect rattan, although one is also a foreman.

Rattan collection is done by a younger member (i.e. the son of the owner of the house who lives with his parents or in-laws) of the family while the older members tend to cacao. In Desa Dua, none of the top ten cacao cultivators collect rattan, even though their land areas average only 2.35 ha compared with 3.85 ha in Utani. From this perspective, there is an inverse correlation between capital and rattan. In Desa Dua and Utani, the more wealth a household has, the less likely they are to engage with rattan markets. This capital wealth, often derived from rattan production and invested in land and cacao production, provides access to cacao, which enables households to have the option to not collect rattan. In this way, capital serves to increase the income-generating options for households, thereby tending toward less rattan and more cacao production.

The more capital that a household has, the more income-generating options they have, concurring with Thoms (2008). If the perceived benefits of NTFP production outweigh other activities, actors with more access to capital may choose to engage in NTFPs. In the case of rattan in Utani and Desa Dua, more capital means less rattan production due to its comparatively weak opportunities for income-generation and high labour requirements. While rattan is accessible to most Utani families, it is not the mechanisms of access to rattan that govern their livelihood choices as much as the mechanisms of access available to them to benefit from other livelihood options, and especially cacao. As I have shown, those with access to capital requirements such as land and seedlings to cultivate cacao will invariably choose to do so as the benefits are greater in terms of overall income and income stability, coupled with reduced personal risks and the ability to manage time better.

5.5 Conclusion

This chapter covered access from forest before rattan is transported to Palu for processing. Labour relations are complex and changing, bound by a series of social and market relations. Foremen, a type of village elite, used to have exclusive access to labour relations, capital, social and market connections, and knowledge. The movement from a foremen-centred model of labour relations to a polycentric one at the village level goes against what NTFP literature often refers to as the tendency for elite capture for commercialised products (Belcher 2005; Dove 1993; Heubach et al. 2011; Neumann & Hirsch 2000; Springate-Baginski & Blaikie 2007; Thoms 2008). These changes were facilitated by technological changes of a road that enabled motorbike access to Utani and mobile telephone access closer to the village, combined with increased attractiveness of alternative livelihoods activities: namely, cacao cultivation. The ability to communicate directly with bosses enabled collectors to obtain market relations and capital (in the form of advances) directly from the bosses. Therefore, while elite capture is evident in other parts of the GPN, at the village level, specific mechanisms of access disabled elite capture in the village. Even so, although collectors are positioned to leverage their authority over forests and exclusive access to rattan in the forest, they accept the market prices issued to them by bosses, who in turn are subject to processor offers (see next chapter). They accept the prices because they do not have direct relations with any other markets and see no alternatives but to accept the prices bosses offer, or gain income from something other than rattan.

Trust and loyalty are developed among boss and collector though loans. Loans are consistently referred to as 'help' by collectors and they have a deep appreciation to bosses for this help. In return, collectors provide their loyalty to the boss just as the boss does to the processor. Even with strong market incentives, actors would not betray the loyalty to their buyer. Social and labour relations are often strengthened by relationships that have been inherited. Also inherited is the customary authority of villagers over the forest. The forest is one of Utani's principal collective capital

assets, intertwined with its collective social identity. This capital provides leverage for Utani to extract rent from its neighbours because of its social identity that shapes its traditional control over the forest and rattan.

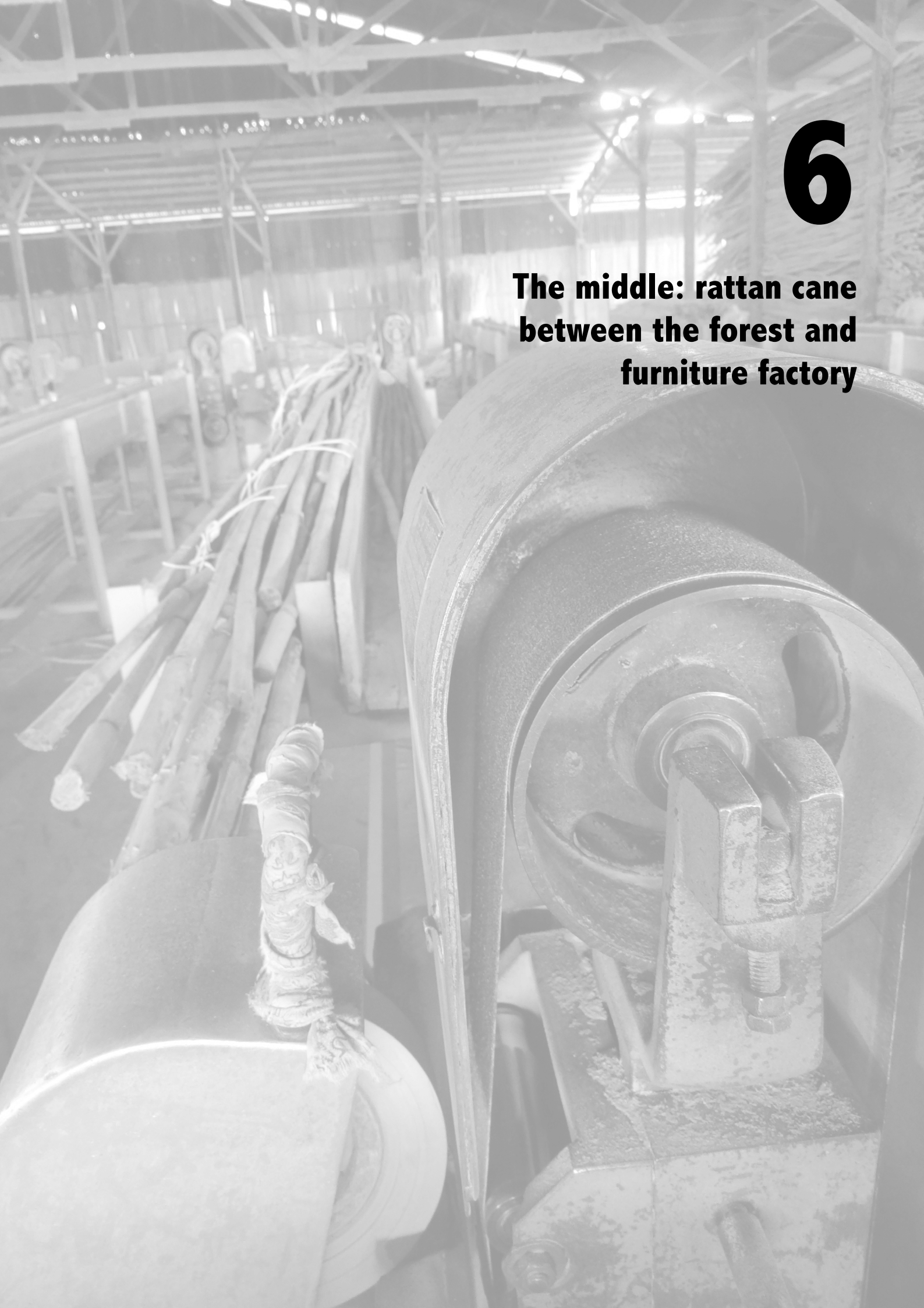
But rattan is not the only source of income for Utani villagers. As access to cacao improves, forest-based actors make decisions that reduce access to rattan. These decisions are largely shaped by the market demands and price thresholds controlled by processors. Although collectors have little control over the demand for rattan, their reactions to changing markets in comparison with alternatives, like cacao, influenced the quality and availability of rattan in the market. There is therefore an inverse correlation between wealth and rattan collection, with elites (foremen) preferring to cultivate cacao over collecting and trading rattan.

Although Belcher (2003) suggests that higher levels of capital result in better abilities to benefit from rattan, this analysis shows that elites, and many rattan collectors, chose not to. Rather, they chose to benefit from alternatives to rattan collection, as Thoms (2008) suggests elites are better positioned to do. This, ultimately, affected the forest through the land use decisions made by forest users, and created the effect of 'moving forests' and increased difficulties (with reduced interest) in collecting rattan. In this way, the ability to benefit from rattan must be considered in relation to the ability to benefit from other things. The combination of declining orders for rattan, reduced farm gate prices, increasing material challenges to rattan collection, and the increased ability to benefit from cacao mean that downstream GPN actors will be continually challenged to access rattan.

The access of other GPN actors is dictated by the choices that rattan collectors make, in part based on the materiality of the resource, and in part related to the value of rattan compared with alternatives (in this case, cacao). The choices that rattan collectors make affect the ability of downstream actors to benefit from rattan.

Materiality affects access to rattan and how it compares with other alternatives. A similar logic could be applied to other NTFPs compared with agricultural products. That is to say that the foundation of agriculture itself is an effort to control, to some extent, the biogeophysical and locational features of plants because of the desirable

benefits of convenience, quality control and reduced costs. It is therefore understandable that collectors would prefer to engage in agricultural activities, especially when the financial benefits outweigh that of NTFPs. While some species of rattan are cultivated, others resist cultivation and depend on the forest for survival and subsequent extraction. Where the benefits from alternatives outweigh the benefits from rattan, the forest may be at risk of being transformed into agricultural land, as indicated in inverse correlations between agricultural and forest incomes (cf. Angelsen et al. 2014). In the next chapter, I start with the bosses in Belia and their relationships with processors in Palu. These actors play an important role in the middle between the forest and upgrading to furniture.



6

The middle: rattan cane between the forest and furniture factory

The processors are the first actors in the rattan global production network (GPN) to make decisions about the final destination of rattan. They are therefore positioned as an intermediary that plays a key role in making rattan cane available to furniture manufacturers both in Indonesia and throughout the world. As other studies have shown, key intermediaries can be critical to GPN governance structures as an articulation between raw materials and finished product (cf. Hyman 1996; Neumann & Hirsch 2000; Pascual et al. 2010).

NTFP literature shows that more benefit is likely to be obtained as the product is processed and transported by key actors (Arnold & Ruiz Pérez 1998; Marshall, Newton & Schreckenberg 2003; Sunderland, Ndoye & Harrison-Sanchez 2011). Benefits are often therefore captured by intermediaries rather than by forest-based actors (Hyman 1996). Processors are no exception to this, however they are to some extent restricted in their control of rattan harvesting from the forest. Following Barham et al. (1994), monopolisation of rattan in the forest is challenged by its biogeophysical properties, making rattan available in remote locations and in this case, under the customary control of villages or inside the national park. Therefore, in order to gain and maintain access to rattan in the forest, processors use several mechanisms of access by shaping labour, social and market relations, and developing trust and loyalty, which is especially important as the space between actors is greater (Gereffi et al. 2005). Once the rattan is taken out of the forest, processors have more control. Even where processors are found to control prices and availability of rattan, as this chapter will show, their monopolistic position can be a constructive force within the production network and indeed beneficial to other GPN actors as a whole (cf. te Velde et al. 2006).

This chapter explores access within the rattan GPN from the bosses in Belia to Palu processors to wholesalers in Indonesia. With the exception of the last section, most of the data I use in this chapter are based on interviews with GPN actors. I start the discussion with an analysis of how social identity and relations shape market access in Section 6.1. From there, I explore issues of trust and loyalty in Section 6.2, especially between buyers in Belia and processors in Palu, and processors in Palu with wholesalers in Cirebon and Surabaya. I then turn to labour and capital

requirements for benefiting from rattan among these actors in Section 6.3 and Section 6.4. In Section 6.5, I analyse issues of scarcity, both real and perceived, which leads to a discussion about access control and elite capture in Section 6.6. Finally, in Section 6.7, I use trade data to illustrate changes in the rattan cane and plaiting material industry at the local level, highlighting the effects of the Indonesian ban on the export of semi- and un-processed rattan (introduced in Section 4.5).

6.1 Social identity and relations shape market access

In 2013, there were four active bosses in the Belia area. All of them inherited the business from their parents and all of them have strong and long-standing ties with processors in Palu, of which there were six active (one was reported as barely active and I could not interview him). The parents of the bosses were all immigrants to Belia. They came with enough capital to hire or purchase a truck, the most costly part of their activity. Over time, many had acquired additional trucks themselves, but now they have mostly been sold off due to decreasing orders for rattan over the past decade. The bosses have the business knowledge to negotiate with the processors in Palu. Foremen, by contrast, lacked this skill according to self-admission in interviews. Bosses were either born into, or married into the *Bugis* ethnic group, which were transmigrated by colonial powers and are known as traders throughout Indonesia and especially in Central Sulawesi (Li 2007). The terms of agreement are negotiated between the bosses and the processors, although the unit costs are absolutely fixed by the processors, according to bosses. Increasingly, processors place specifications on size and species of rattan to meet market demand.

All Palu processors but one have a social identity of Chinese ancestry, which is useful given that 94 per cent of Indonesian exports were to China, Hong Kong and Singapore prior to the 2012 ban on exports (UNcomtrade). Only one could not speak Mandarin according to interviews with them. This knowledge of the language and social identity was important in building the trust among international buyers and opened up market opportunities. In several cases, processors sold rattan to family members in China and Singapore. One of the main processors in Palu sold to a cousin in Singapore who sold to another of their cousins in Guangzhou, China.

In Section 6.7, I describe that the majority of processors have closed since the ban was implemented. According to remaining processors, the processors that have closed are of various ethnic backgrounds. Most were smaller scale than the remaining ones. Processors explained that "Java takes too long to pay" and therefore the smaller processors could not absorb the payment delays that interrupted capital requirements in the way that larger processors could. This explanation is only partially satisfactory because large amounts of rattan continue to be exported despite the ban (see Section 6.7). An additional explanation is that social identity, language, and trust may have become more important as the trading of processed rattan was pushed underground.

6.2 Trust and loyalty among actors

Trust and loyalty are central to maintaining the social relations required to maintain access. Suryanata (2005) highlights this concept in patron-client relations. When patron and client are kin or neighbours, there is more contractual flexibility and weaker enforcement than when there are not such close social relations. Social relations can therefore be instrumental to access or exclusion and are the carrier of trust, an important component of social networks (Castelfranchi et al. 2009; Putnam 2007). Trust reduces the social distance between actors and reduces perceived risks (Gereffi et al. 2005). As shown in Chapter 5, bonds between bosses and collectors are quite strong, facilitated by financial indebtedness, which is considered as 'help' by collectors. Bosses and processors have a similar relationship and, as mentioned earlier, have long-standing relationships formed by social identities and relations often dating back generations.

In only one case had a boss changed to a different processor, and that was because the struggling processor was on his way out of business in 2012. Otherwise, there is trust and social capital built up between processor and boss. Contracts are all verbal as are agreements on advances, which are made in much the same way as between boss and collector. Also similarly, no interest is collected. This trust, which has built over the generations, has resulted in a level of loyalty that is invaluable to the processors and serves to secure their supply of rattan. Of the three bosses interviewed in Belia, one has sold to the same processor for 30 years. When

challenged to ask whether or not he might try to get a better price from another processor, he said, "sometimes I get quotes from other processors, but only to get a better price from [the processor he always sells to]... because we know each other and trust one another, so I keep selling to them." Another boss has an agreement with a Palu processor that he will sell all rattan cane to the processor. If he wants to sell to another company, he must ask permission in advance to the processor. "But I have never done that" he says of the option to request an exception to this exclusive contract.

Trust is the main reason that a new entrant to the market as a boss or supplier is "almost impossible" according to one boss. He said that building the relationships with communities to gain their trust is not easy. Utani collectors told a story of a potential new entrant that wanted to source rattan from them. They were not sure what company they were, but they were Javanese from Cirebon and wanted to buy rattan directly. They offered a 25 per cent price premium on the current rate, but the offer was rejected in Utani for reasons they explain as "we don't know them. Our bosses help us, but we don't know about these outsiders." Belia bosses confirm that this happened in 2010 and cite it as an example of importance of trust-building with collectors. Meijaard et al. (2014) found that when a similar offer was made by a Cirebon factory in Kalimantan, collectors also refused to sell to them. In this case, it is unclear whether the refusal was based on loyalty or the territoriality of the bosses or processors. The result is that control of existing processors over the supply of rattan is made quite strong through these bonds of loyalty. The Java furniture factories feel "held hostage", according to one interviewee, by processors/ wholesalers who ultimately control the price and availability of rattan. They have developed social relations that have secured market access through a complex web of familial ties, tradition, loans, and strong social relations. While several new entrants have attempted to access rattan at reduced prices by avoiding these actors, they have failed.

6.3 Labour requirements for access

Processing factories have 20 to 40 employees, sourcing labour from nearby communities. More than half of the workers are related to one another through a familial tie or other social relation and most have worked at the factory for several years, the foremen usually for 20 years or more. They live near the facility and obtained the job on the recommendation of existing employees, according to workers from several factories that I interviewed. As a result, family members work at the same facility. Employers recruit women to work in processing facilities when men were too difficult to source. They are therefore involved in the least desirable roles, often involving detailed work and activities such as sanding rattan cane, which produces significant levels of dust and is a low-paid position.

In most factories, the owners can entrust day to day operations to a select group of foremen since the owners are often required to travel for business purposes and two own rattan facilities in Java as well. One processor commented that "it is easy to find labourers, but sometimes they don't stay for very long. It is hard to find the managers on whom I can depend." That processor's son does most of the oversight in one of the facilities I visited in Palu, and they have one long-time reliable manager who supervises day-to-day operations and who has been with them for more than 20 years.

6.4 Capital requirements for access to rattan

Compared with the forest, where there was a weak correlation between wealth (capital) and the ability to benefit from rattan, capital requirements are higher at the levels of bosses and processors. While all of the Belia bosses have divested their main equipment required for the work: trucks, they all agree that capital was a major contributor to their parents entering the business. Central Sulawesi has changed considerably over the last 50 years and now trucks ready for hire are commonplace. This, combined with the reduced volume of rattan trade, has motivated the bosses to hire trucks rather than own and maintain them, which allows for a more flexible schedule of business expenditures.

Processors do not have the same level of flexibility. Processors require substantial amounts of capital to purchase equipment and acquire at least a hectare of land along the road to the local port. Land is required for drying rattan. Machinery includes curing equipment (a rudimentary boiler to heat the oil in which rattan is cured), washing tanks for sulphur treatment, and the polishers and peelers that are needed to clean the rattan to uniform diameters and lengths. Warehouses are required for inventory and trucks for transportation to the port. This requires specialised knowledge of appropriate methods and of the five processors in Palu, at least four inherited business from their parents or parents in-law. Several have business degrees and experience, which facilitates the negotiation of rattan by the container, each worth about USD 20,000.

For many, this capital has proven a liability, as evidenced by the processor closures in Palu mentioned in Sub-section 4.6.3. Factories sit empty and the owners hold on to faint hopes that the land and warehouse might be useful to another industry. They sit on a mix of leased and owned land, some of which is prime real estate, as evidenced by the nearby 'Citra Land' exclusive housing development being developed near several of the current and closed factories overlooking the ocean.

6.5 Scarcity: real, perceived, or both?

Before coming back to the processors, I situate the issue of scarcity from the perspectives of furniture manufacturers in Java who buy rattan material. One of the main concerns for furniture factories and (non-aligned) wholesalers in Cirebon is the difficulty of sourcing raw rattan. They discuss these issues in three ways. First, they are concerned about the lack of availability of rattan material. The owner of one high-quality factory in Cirebon personally frequented Sumatra to order *manau,* a species prized for its density and flexibility. Another high-quality manufacturer ordered rattan from Surabaya to circumvent what they perceive as unstable availability in Cirebon. A local grocer's warehouses were near empty and they had back orders. Managers stated that they were not able to get the material in stock (they sell mostly rattan from Central Sulawesi). The second and third issues are closely related: one is that the prices are too high for factories as they remain pressured by furniture buyers to reduce prices. The other is that quality is often

compromised. As one veteran factory owner explains, "[quality grade] A has become B and B has become C. Before it was not like that. What does it mean when they say 'quality AB'? It means B. It is very difficult to find true A anymore, and even the B in AB is what we used to call C."

So pervasive were these perspectives that manufacturers, along with industry associations AMKRI and eventually ASMINDO, were convinced that, as one factory owner said, "all the good quality rattan runs off to China." This was a common perception in Java; that there is still rattan in the forest, but that it is exported, reducing supply in Indonesia and increasing the price because importers are willing to pay more than what Indonesian factories can afford. This, as will be discussed more in the next chapter, was the primary motivation for the export ban that took effect in 2012. After the ban, the rattan cane prices did not fall. One manufacturer said that, "it is better than before [the ban], but it is still difficult and the prices went up, not down." While the prices did rise momentarily after the ban (which processors attribute to limited supplies as they wanted to assess the market before buying more inventory), the fluctuation was corrected and prices have remained stable with inflation.

Manufacturers suggest two reasons for the continued supply problems: first is that processors are stockpiling rattan supplies in an effort to discredit the ban. Second is that smuggling continues, which keeps prices high and availability in Indonesia low. No manufacturer representatives interviewed believed that there was a shortage of rattan in the forest.[53]

The first reason had no basis in practice, at least not among the processors included in my study. The dominant story in Java is that a select group of rattan processors are hoarding stockpiles, refusing to sell their inventory to disprove the ban has a positive effect on the furniture market. In speaking with the rattan material processors, and observing their facilities, it is clear that this was not the case. There were no stockpiles of rattan in outlying islands, nor is it a wise business decision to pay for

53. However, as discussed already, rattan collection is a decreasingly attractive option, and forests with available rattan are decreasing in size and moving further from the village.

material that may not be able to be sold quickly, especially given that rattan is subject to deterioration in the elements and to infestation by various pests. As one processor put it, "why would I buy rattan that I can't sell? It will just get eaten by insects."

The second, on smuggling, is discussed in Chapter 8. It is a more plausible part of the reason that prices have remained high. Smuggling occured at significant levels, although I cannot estimate total volumes exported with certainty. Among 21 respondents who ranked the reasons for the price stability of rattan after the ban, smuggling was ranked the first reason in the online survey of rattan actors.

A third explantation of scarcity is due to the market control position of processors. For example, the small grocers[54] in Cirebon (Java) had empty warehouses, but Star (the biggest warehouse in Cirebon and also having processing facilities in Palu) had over 1000 tonnes in Cirebon (see Image 6-1) and since the time of fieldwork, had opened up furniture manufacturing facilities to be able to use what company owners see as an excess of rattan cane in the market. By early 2015, Star was already filling export orders, thereby controlling a larger portion of the production network. Therefore, contrary to the claims of manufacturers, processors are not stockpiling rattan, but they are making it available at rates that they control.

54. Retailers/ small wholesalers

Image 6-1: One of four Star warehouses containing over 1000 tonnes of inventory in Cirebon

Source: Author

With one wholesaler controlling the market in Cirebon and one in Surabaya, manufacturers who cannot afford to, or prefer not to, purchase from these wholesalers, perceive scarcity of supply. This perception, or manufacturing of scarcity, is key to the stable and increasing prices of rattan cane in Indonesia (cf. Hudson 2011). Wholesalers contribute to this perception by perpetuating the difficulties in obtaining rattan from the forest, citing deforestation and some of the issues discussed already in this chapter about collectors being under-motivated to collect rattan. The ban was designed to alleviate issues of scarcity and high rattan prices, but it has so far had little effect. I analyse the reasons for this in the Section 6.7, which explores the effect of the ban on rattan material actors in Sulawesi, but first examine how a select group of cane processors positioned themselves to have such control over rattan materials.

6.6 Access control among rattan cane processors

Although sometimes distinct actors, cane processors and wholesalers often collaborate closely and have deep-rooted relationships– especially the larger ones. In some cases, the processor and broker are one and the same with a single company having operations in both Palu and Cirebon, like Star. Star has social contracts with many of the largest bosses in the Belia area. Another cane processor

has facilities in Palu, Makassar and Surabaya but sells most of his cane to Star. There is one other processor in Palu buying heavily from Belia and processing the rattan before shipping it to their warehouse in Surabaya. The result is that most cane used in Cirebon and Surabaya and sourced from Sulawesi is controlled by these three companies, which work very closely together in a near monopoly on Sulawesi-sourced rattan cane. As Section 6.7 will show, so strong is the position of these processors to control prices and supply, that the ban on the export of semi- and un-processed rattan has had a minimal effect on the domestic prices of rattan.

The companies sold at Rp.14,000/kg for class AB *batang*, when the sale price in Palu was Rp.13,000/kg, leaving little room to cover operational expenses in Cirebon let alone transportation to Java. This means that rattan cane trade in Indonesia is not especially profitable and other retailers have to sell at higher prices just to cover costs. This type of near-monopoly of raw material supplies in the furniture industry has been noted by others. Smith and West (1994) describe instances in which "a firm, industry and/or nation can be held 'hostage' by those firms, industries and/or nations with the Indigenous raw material." (p.113). These are the same words, "held hostage" that one manufacturer used to describe the rattan supply problem in Cirebon.

Price control depends on the source island. Sulawesi is tightly controlled in an oligarchy. According to interviews in Cirebon, Sumatran rattan does not have "the mafia problem"[55] as several factory representatives phrased it. Kalimantan, dominated by cultivated rattan (Belcher 2001), is the least centralised market and buyers report great ease of seeking alternative suppliers. Consequently, prices have increased more for rattan sourced from Central Sulawesi than from Kalimantan or Sumatra since 2011 according to wholesalers in Cirebon. However, they also state that the overall market price for rattan is sufficiently impacted by the Central Sulawesi processors that other processors follow suit.

55. The processors in Palu are sometimes referred to as "mafia" by furniture manufacturers. It is outside the scope of this study to define 'mafia' but the extent to which the processors are involved in organised crime of any kind is dubious, especially considering the term was used prior to the ban, in which case exporting rattan cane was completely legal. Factory owners use "mafia" to imply the control over the market these few actors have.

Rattan processing is one of the more lucrative activities within the rattan GPN, in part due to the ability to control prices. Compared to bosses, who make about 12 per cent profit, processors profit an estimated 57 per cent. Table 6-1 shows the costs and profit margins for bosses and processors based on interviews. Subsequent chapters will show that no other GPN actor gains as much profit as processors.

Table 6-1: Value addition and profits by bosses and processors per kilogram

Cost	**Boss**		**Processor**	
	IDR	**%**	**IDR**	**%**
Purchase price	1500	85%	2000	36%
Transportation	258[56]	15%	676[57]	12%
Processing (incl. labour)	-	-	2000[58]	36%
Material losses	-	-	800	14%
Permits	-	-	50	1%
Taxes	-	-	30	1%
Total costs	***1758***	***100%***	***5556***	***100%***
Sale price	2000		13,000	
Profit/ Pre-tax owner benefit	242	12%	7444	57%

Source: Interviews

There is therefore a great deal of benefit to be had and an advantage to having control over prices. The social distance between Java and Sulawesi is considerable if not for the processor/wholesalers who operate in both. As mentioned earlier, javanese manufacturers have experienced problems trying to shorten these distances by trading directly with rattan collectors to no avail in the past. The dual function in the GPN as a rattan processor and wholesaler has put the remaining processors in an advantageous position and the biogeophysical concentration of *batang* has enabled them to control based on a relatively limited territory. This control over the market

56. Truck, fuel and driver IDR 10,000,000, bribes on the road IDR 3,500,000, miscellaneous IDR 200,000 for a 6 tonne load. Based on interview.

57. IDR 11,500,000 per container. Each container has 17 tonnes.

58. Estimate based on two processor responses interview. Includes all operational costs, salaries etc, but owner is paid from profits.

was tested when the primary markets on which processors relied (exports) were weakened by the ban. I explore that issue in the last empirical section of this chapter.

6.7 How the ban affects rattan material GPN actors and supply

The rattan export ban took effect in January, 2012. The intent of the ban was to protect the rattan furniture industry in Indonesia against international competition. While this policy implementation served to enhance the ability of rattan factories, concentrated on Java, it did so by excluding rattan-producing islands from benefiting from rattan to the extent that they did prior to the ban. The most immediate effect of the export ban was to eliminate all legal exports of Indonesian rattan material, which had a great impact on the processors, who formerly exported un- and semi-processed rattan as their most profitable product.

The rattan furniture industry is focussed in Java while the rattan material comes from other islands, which are generally natural resource rich and materially poor compared with Java. According to rattan wholesalers in Cirebon, the demand for stock has been low since 2008 or 2009. Sulawesi-sourced demand had been even lower because manufacturers found suppliers in other provinces when the Governor of Central Sulawesi placed a ban on the shipment of rattan cane to other islands in Indonesia in a bid to strengthen the Sulawesi manufacturing industry, which had negligible effect on Central Sulawesi since exports were still permitted and no other substantial supports were provided to manufacturers to get them to a level that they could compete with Java. During that time, Javanese buyers sourced their product from Kalimantan and Sumatra. Those market relations remained after the lift of the inter-island trade ban when exports were banned from all of Indonesia in 2012.

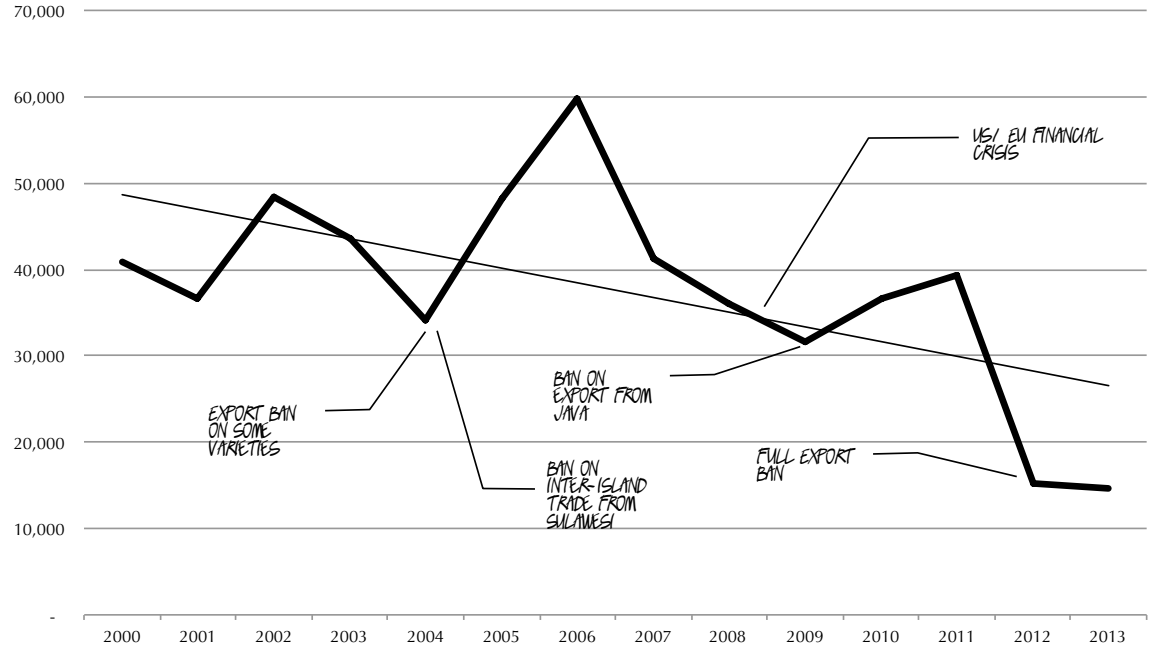
Total sales of rattan material in Indonesia dropped from 2000 tonnes per month to 700 to 800 tonnes within the first few months of the ban (Usaha Rotan Bangkrut, Kompas April 7, 2012). In Central Sulawesi, six rattan cane processing facilities remained in 2012 down from 22 prior to the ban. According to industry insiders, remaining Central Sulawesi processors were operating at around 40 per cent of pre-ban production levels. These closures and downsizings resulted in a reported loss of 600 jobs in the province (Usaha Rotan Bangkrut, Kompas April 7, 2012). Proponents

of the ban say that these losses are more than offset by gains in downstream processing in furniture factories, which have a much greater employment potential than at upstream levels.

Figure 6-1 shows rattan exports from Indonesia as reported by importing nations. The volume of exports declined by almost 40 per cent in 2012 compared to 2011 and was stable in 2013. Data on domestic consumption of rattan is much more difficult to estimate, but rattan processors indicate at least a 50 per cent drop in sales after the ban was put in place. Figure 6-1 shows that despite the US/EU financial crisis,[59] exports continued to rise until the ban was put in place. It is worth mentioning that the 14,909 tonnes traded in 2012 and 14,498 tonnes traded in 2013 are illegal according to the ban. There is no agreement among countries that holds other countries accountable to Indonesia for importing its rattan. Therefore, although the exporting is illegal from Indonesia, the importing is not illegal to other countries, thus the continued reporting of rattan being imported. I will discuss this issue, along with other forms of smuggling, in Chapter 8. For now, it is important to highlight that the reported sales (especially export) of rattan cane and plaiting material dropped significantly after the implementation of the trade ban in 2012 and that the only times that export volumes fell under the trendline since 2002 were when export bans were implemented. To some extent then, other countries were excluded from benefiting from Indonesian rattan. Further, the closures of processing facilities in Central Sulawesi (from 22 to six) combined with the continued trading of rattan suggests that either most of the rattan used in and smuggled from Indonesia is from outside Central Sulawesi and (or) there has been a concentration of processors, ostensibly to the companies that are more capable of adapting to markets that depend, for a large part, on illicit trading.

59. Started in 2007, took effect on different industries in 2008 and 2009 first in the US and then in the EU (Viju & Kerr 2011)

Figure 6-1: Reported rattan cane & plaiting material imports to the world from Indonesia 2000-2013 (tonnes)



(Data source: UNcomtrade).

While the slowdown had an impact on the businesses on the outlying islands like Sulawesi, its impact may be more strongly felt by rattan collectors in Utani. A slowdown in rattan collection has irreversible effects on livelihoods and forests for the simple reason that if collectors are not able to gain enough income from rattan, they seek alternative sources of income, as already discussed in this chapter.

Rattan collectors don't experience very much impact from the market price fluctuations of rattan (Effendi et al. 2013; Meijaard et al. 2014). They are impacted by volume. Not only are rattan orders down, but contracts for collection are under more onerous and specific requirements. Increased specifications force collectors to take more time to select rattan in the forest, involving trekking further into the forest and covering a larger area, ultimately reducing efficiency.

The unequal bearing of the consequences of rattan export bans has been highlighted under previous bans in Indonesia. The following passage was written of the 1986 rattan export trade ban and describes, more or less,[60] the current situation:

60. Chapter 7 shows that even most factories in Java fail to benefit from the 2011 ban.

> The benefits are going to exporters, factory owners and workers in Java, but are being achieved at the expense of the tens of thousands of villagers who collect rattan and other forest products in the Outer Islands (principally Sulawesi and Kalimantan); their former export channels have been seriously disrupted, and will remain so until comparable local markets can be created (Mackie & Sjahrir 1989, p.12).

In addition to the trade restrictions resulting in decreased market access, extraction fees were increased. For reasons unclear to any of the actors interviewed, in 2012, the Ministry of Trade increased the tax associated with collecting forest products (GoI 2012).[61] The price varies by species, but in some cases, was a 10-fold increase in extraction taxes (Effendi et al. 2013). The discourse around this issue among processors and bosses can be summed up in a comparison made by one respondent that "the government is the same as the VOC".[62]

While this preference of the core at the expense of the periphery may not come as a surprise, even the core (Java) has not benefited as a whole from the policy change. Contrary to policy-maker expectations, there has been little significant change in the price of rattan material in Indonesia. This experience is different from the 1988 ban and from other comparable commodities, such as timber, where decreased access to demand resulted in lower prices (Dudley 2004; Sasaki 2007). Although a small increase in price was evident in the first three months of 2012, when supplies dwindled due to material suppliers' uncertainty of markets by rattan, the price has remained stable and increased only with inflation.

Processors and suppliers attribute the unexpected stability of the price of rattan to two main issues. First, that sales volumes are significantly lower than before the ban. Although Figure 6-1 suggests this to be so, Chapter 8 shows that there is additional

61. No.22/M-DAG/PER/4/2012 concerning the Payment of the provisions of forest products (Pembayaran Provisi Sumber Daya Hutan - PSDH)

62. *Vereenigde Oost-Indische Compagnie*: The Dutch trading company that prohibited unauthorised extraction of natural resources, mostly teak, from the forests, but did not supply any markets or alternatives to Indonesians (Peluso 1992b).

illicit trade that I cannot calculate within the scope of this study. Lower volumes mean that a higher percentage of each sale must be used to pay for operational costs.

Second, Indonesian factories are more selective than international buyers in the species and sizes of species that they use, leading to more wastage and labour in sorting and selecting. This concern was brought up by collectors in Utani as a factor that has made their work more difficult due to the need to select species and sizes before harvesting. The burden of increased selectivity is likely more on collectors and bosses than on processors since they specify in (verbal) contracts with bosses that the order is for certain sizes and species. In Central Sulawesi, buyers limit the amounts of rattan they purchase over 30mm. Processors attribute the increased specifications to the experience that Indonesian furniture manufacturers purchase a more narrow range of sizes and species than did international buyers, which accepted 'all species, all sizes.' Given the volumes of rattan continued to be sourced from Indonesia by international importers, it is difficult to verify that more specific sizes and species are due to more limited uses in Java and not overall market trends.

The ban has therefore proven to be ineffective in achieving the Ministry of Trade's stated purpose of increasing supply and reducing costs for domestic furniture manufacturers. It has also come at considerable costs to the rattan collectors, bosses and processors whose volumes have decreased, but perhaps by less than what the trade data would suggest. The processors have used their strategic placements within the rattan GPN to ensure that prices remain stable, but even the elites among them have invariably suffered from the extra costs and decreased sales volumes.

6.8 Conclusion

This chapter covered access from Belia to the warehouse before rattan is transformed into furniture. This included three phases of production: compiling rattan in Belia and transporting to Palu, processing in Palu, and then transporting to warehouses in Cirebon. These phases proved to be fairly distinct activities of upgrading with overlap in actors only between warehouses and processors, which is part of strengthening a trading alliance over raw material supply in Indonesia.

I identified social identity as an important mechanism of access at all levels of actors within Central Sulawesi. Bosses, the intermediary between collectors and processors are mostly Bugis, a cultural group that has (or has been) transmigrated and are known as traders. Another prominent mechanism of access that facilitate market access is social relations, and specifically trust and loyalty built through the provisions of advances and loans to each actor by their upstream counterpart.

In the journey from forest to the warehouse in Cirebon, the price and flow of rattan is controlled by processors, who earn a significantly higher markup than bosses. Collectors receive only a fraction of the wholesale value, near 10 per cent, which is typical for other types of NTFPs and processed agricultural products (Jensen 2009; Kaplinsky 2000b). While there is no elite capture in the forest among rattan collectors (Chapter 5), processors represent an oligarchy that sets both the purchase and sale price of raw material. They can afford to do this because of the resistance of the assemblage of actors in Central Sulawesi to new entrants, the control of information, and the limited alternatives available to many actors in Utani. Factories in Cirebon know very little about rattan collection in the forest and rattan collectors know little about how rattan is used. The processors are then a key broker not only of market, but of knowledge in the middle of the GPN.

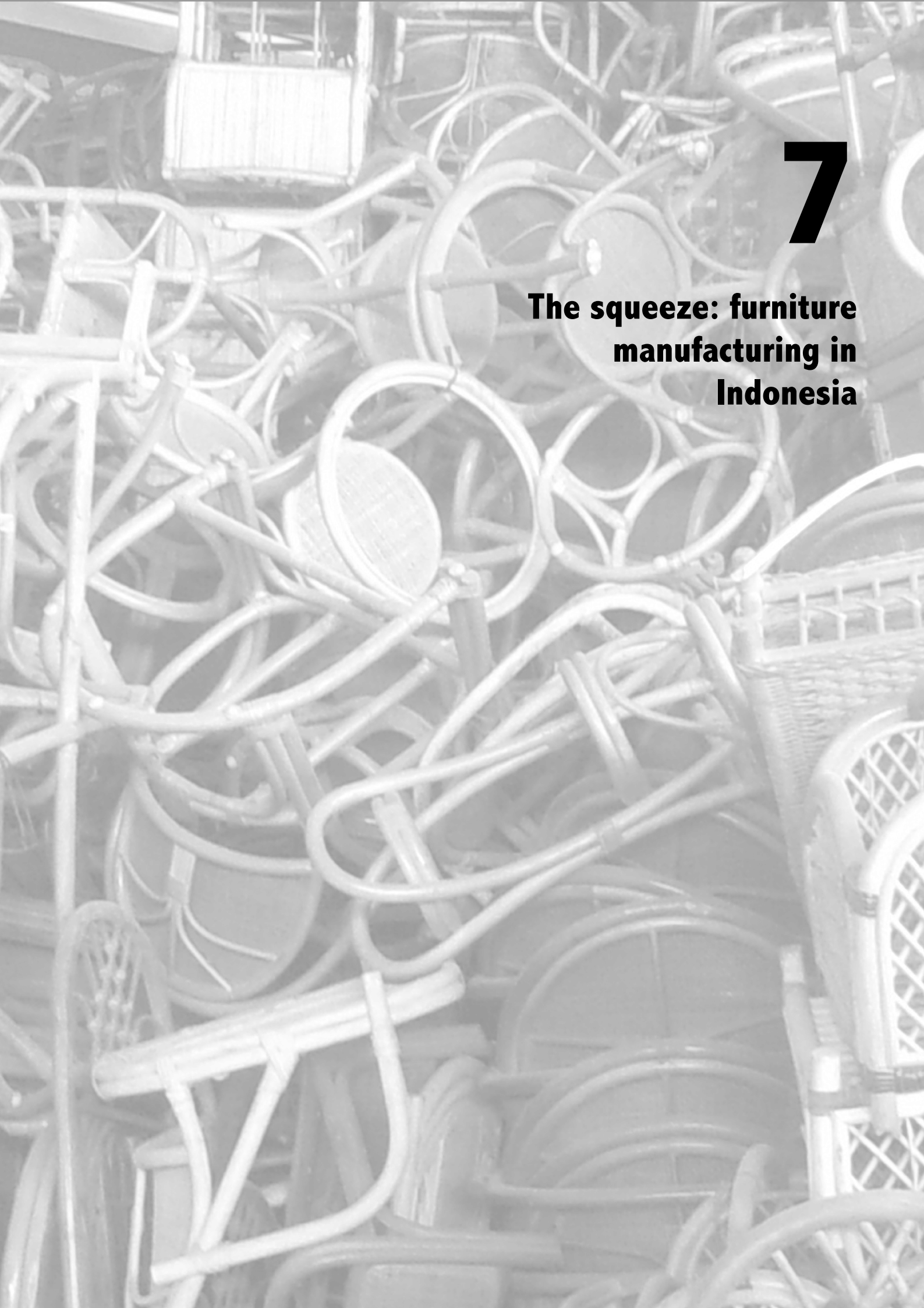
Since there is no processing done in the village or among bosses, processors have the leverage to command prices to the extent that collectors will collect rattan (cf. Hyman 1996). So far, decreasing demands have coincided with increased difficulty in obtaining rattan in Palu. This enables the processors to retain their position of control over rattan prices.

Some processors in Palu maintain an advantageous position in the GPN and an ability to extract proportionally more rent than other GPN actors, including downstream GPN actors as future chapters will show. The remaining processors use their access to capital and the market relations, strengthened by social identities and language, to survive even within the reduced sales volumes attributed to the ban. The level of control that processors have over supply, and the extent to which they maintain high prices, is subject to critique as taking advantage of a monopolistic position. However, the strong relations that processors develop with bosses, and subsequently bosses with collectors, also prevents other firms, specifically those from Java, from extracting rent for the production of rattan materials (for more on productive roles of monopolistic intermediaries, see te Velde et al. 2006).

Finally, I discussed the Indonesian ban on the export of un- and semi-processed rattan and the effects that it had on the rattan material industry. I showed that the policies were put in place under the protest of the rattan material producers and that sales volumes have reduced significantly after the ban, leading to the closures of many processing businesses, and reduced incomes for collectors in the forest. In subsequent chapters, I will continue the narrative of the ban to show how it has affected Indonesian and global rattan furniture manufacturing industries.

This chapter ends in the warehouses in Cirebon and inventories in Palu. From there, the GPN then branches into rattan used for furniture processing in Indonesia, the focus of Chapter 7, and raw material exports, international furniture manufacturing, and retailing explored in Chapter 8.

This page is intentionally
left blank



7

The squeeze: furniture manufacturing in Indonesia

Manufacturers of rattan furniture find themselves in desperate times, calling for desperate measures. Rattan furniture sales are on the decline, calling to the fore social relations to maintain market transactions and struggles for legitimacy among trade associations within Indonesia. The implementation of the 2011 ban on the export of un- and semi-processed rattan was a grasp to revive declining sales and to alleviate the continued squeeze on manufacturers between the high prices and maintained scarcity of raw materials, escalating labour and input costs, and increased regulations and permitting procedures on one side and continued pressures to reduce sale prices on the other. At a national level, Indonesia sought to make its inventory of natural rattan available for upstream industry actors. However, due to the conditions of intermediary control of the resource, most manufacturers have been unable to manage their supply, as is their tendency in times of low raw material supply (cf. Hymer in Cohen et al. 1979). This chapter analyses the ways in which GPN actors seek to benefit from rattan within the manufacturing phases of production in Indonesia.

Manufacturers' ability to benefit from rattan is shaped by mechanisms of access and external governance factors that influence access just as it is for rattan collectors and processors. However, it is manifested in different ways. Interviews with furniture manufacturers revealed export markets as the most important way that they benefit from rattan. Other mechanisms of access, such as access to capital, labour, technology and knowledge all serve to enable or restrict access to export markets.

I used a mix of survey, trade and interview data to understand market access among manufacturers and the issue of trust and reputation within social and labour relations. I focus my analysis on several theories and concepts and find counter evidence to some of them, and support for others. Gereffi et al. (2005) suggest that trust and reputation sustain spatially dispersed networks. I therefore expected to find that trust and reputation would be an important feature of the GPN, especially as manufacturers interact with buyers, or that, as Cook et al. (2005) suggest, trust is displaced by institutional arrangements that reduce risk. Following Barham et al. (1994) and Dove (1993), I also expected to find signs of increasing elite capture the

further I got from the biogeophysical limitations to rattan access in the forest. Belcher (2003) suggests that higher levels of capital result in better abilities to benefit from NTFPs.

According to classical economic theory, restricting the export of a commodity will increase supply domestically, thereby making it easier to access at a lower price, restricting the supply to raw materials in other nations, and increasing domestic welfare (Goodland & Daly 1996). I therefore expected that although Sulawesi actors were adversely affected by the ban as shown in Chapters 5 and 6, that manufacturers (and their labour) would see an increase in ability to benefit from rattan after the ban, thereby providing a relief to 'the squeeze'. I explore the theory that alternative markets and products devalue NTFPs (Homma et al. 1992) by understanding market trends in wood and synthetic rattan markets that affect manufacturers.

This chapter analyses market mechanisms of access in Section 7.1 and labour mechanisms in Section 7.2. Then, in Section 7.3 I explore the role of industry association in benefiting from markets. Before making my conclusions, in Section 7.4, I show how the ban affected the access of manufacturers to the benefits of rattan.

7.1 Market access among manufacturers

In this section, I focus on manufacturers and their relationships with buyers and access to the export market. The international portion of the GPN will be discussed in the next chapter, but here it is important to understand the relationships between manufacturers and buyers from the perspective of how manufacturers gain and maintain market relations with international buyers. In the first sub-section, I analyse how government regulations affect access to markets, and then I lead into the role that industry associations play in facilitating rattan furniture market access for different types of companies. I then look at how trust and loyalty are critical to gaining and maintaining trading relationships and what strategies firms use to gain and maintain access to export markets. Finally, I examine some of the knowledge and technology-based mechanisms of access that are important for manufacturers to access markets in order to benefit from rattan furniture, and show how margins for

most manufacturers are relatively tight, making them vulnerable to market changes, specifically in terms of exploring new types of alternative products to rattan to diversify product offerings.

7.1.1 Regulatory facilitation and restriction of access to markets

Indonesian regulations, such as export taxes, create a market disincentive for manufacturers and buyers alike. Competing rattan producing countries, such as China, issue no taxes and offer subsidies on rattan furniture exports (Meijaard et al. 2014). In this sub-section, I analyse some of the regulations in place in Indonesia that serve to enable access for larger firms, but restrict it for smaller ones.

The first is the Value Added Tax (VAT). Although the 10 per cent VAT in Indonesia is refundable for exported goods, several smaller and medium manufacturers express that they have made the application for a refund but have yet to receive a response from the Ministry of Finance. Even so, manufacturers are less concerned about taxes and more concerned about export regulations.

ETPIK (Registered Forestry Industry Exporter - *Eksportir Terdaftar Industri Kehutanan*), a national forest product user registration system, had a significant effect on Indonesian rattan furniture manufacturers by limiting access for particular types of actors. In May 2008, a new regulation[63] was passed by the Ministry of Trade outlining updates to a 2007 regulation[64] specifying the requirement to register the export of forest products, including wood and rattan. The prior regulation, passed in 2003,[65] included wood products, but not rattan and was not enforced for wood. Ministry of Trade regulation 35/2011 (the ban) upheld the 2008 regulation, specifying that only registered exporters would be able to export rattan products.

ETPIK-certified exporters must demonstrate that material used in the products was not extracted illegally. To do this, they must demonstrate that the forest product (wood or rattan) was harvested under a *Surat Keterangan Sahnya Hasil Hutan*

63. 20/M-DAG/PER/5/2008

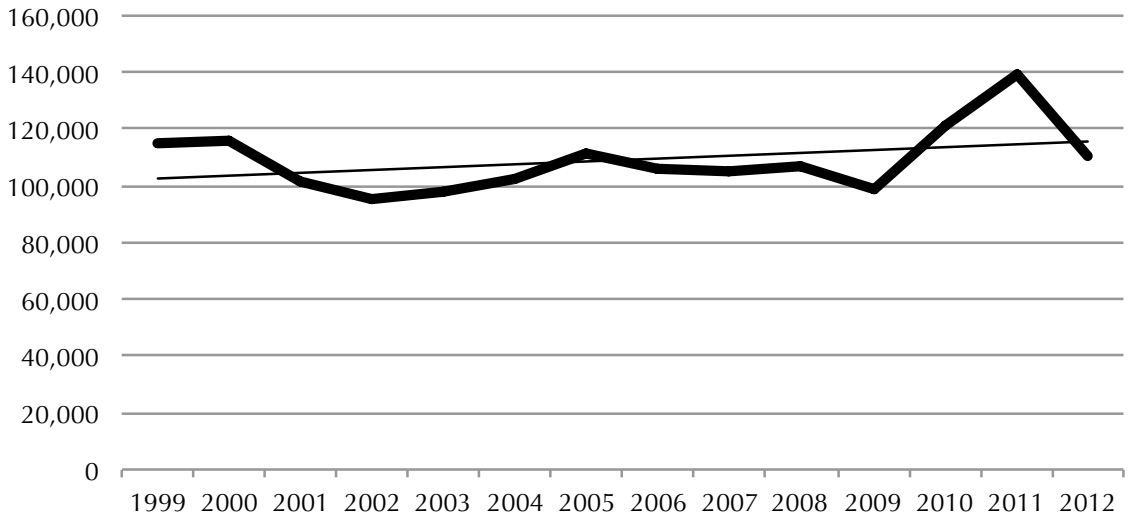
64. 09/M-DAG/PER/2/2007

65. 32/MPP/Kep/1/2003

(SKSHH) or Letter of Forest Product Legality, which is obtained by the processor of the forest product- nominally the wood mill or rattan processor. ETPIK was put in place to protect forests against illegal resource extraction, originally timber. For rattan exporters, the law was enforced starting in 2010.

The ETPIK process, however, disproportionally affected smaller manufacturers. Exports from Cirebon plunged the year that ETPIK was enforced for rattan producers, many of whom admit that they were either not aware of the impending enforcement of the regulation or were otherwise caught off-guard. Manufacturers interviewed claimed that many factories closed that year because of ETPIK, and others simply lost business or incurred increased expenses of paying those with certificates to export their products until they themselves were able to be registered. The implementation of ETPIK also shows a sharp increase in the value per container as shown in Figure 7-1.

Figure 7-1: Export value per container exported from Cirebon 1999-2012 (2013 USD)



Source: Dinas Perindustrian dan Perdagangan Kabupaten Cirebon.

From an average of USD 99,230 in 2009 to USD 121,590 in 2010 and increasing to 139,673 in 2011, this shows a 22 and 14 per cent jump respectively. This increase shows that higher value containers were being shipped in the first two years that ETPIK was implemented, suggesting that higher-end producers and those with advanced stacking or knock-down designs may have been doing most of the shipments in that year. According to interviews with industry actors, these are the companies that had the human resources and savvy to adapt to ETPIK earlier and

tended to be the larger and higher-end product companies. By 2012, the gap narrowed again to values more consistent with the trend, as mid sized manufacturers played catch-up to meet the new requirements for export .

The exclusion of smaller actors happens in several ways. First, certification is cumbersome. It involves several levels of verification that smaller rattan factories reported as difficult to meet in terms of document trails that smaller companies do not know how to source or do not have. These documents include the various ways in which companies are registered in Indonesia such as a Letter of Permission for Commercial Trade (*Surat Izin Usaha Perdagangan - SUIP*), Corporate Registry (*Tanda Daftar Perusahaan - TDP*), Industrial Business Permit (*Izin Usaha Industri - IUI*), and Confirmation of Indonesian Registration (*Tanda Daftar Indonesia - TDI*). The verification process involves an initial assessment and a technical evaluation. Smaller manufacturers interviewed reported that meeting all of these requirements was difficult and several mentioned that many of the companies that have closed in recent years did so because they simply couldn't keep up to date on all of the regulatory requirements.

Second, the certification costs IDR 5 million (USD 500) each audit and USD 3000 for an initial certificate. Businesses without export permits reported using other manufacturers' permits for an additional fee, which they mentioned as burdensome although Kuncoro (2011) reports these figures at about USD 30 to 50 per container. The struggle of costs and delays has also been highlighted for wood furniture manufacturers and is leading the new government (as of October, 2014) to consider repealing the requirements for small manufacturers (Yulisman November 15, 2014).

Third, ETPIK licenses can be cancelled by the Ministry if they are not used within a one-year period. This means that smaller companies only making one shipment per year may be at risk of having their ETPIK certificate cancelled even if they are able to obtain it in the first place (Kuncoro 2011). This condition could be of particular concern to manufacturers also producing other products and infrequently export rattan. Products like synthetic rattan require no ETPIK certificates.

Fourth, several manufacturers reported that ETPIK, as with other regulations, left actors vulnerable to bribes to expedite processes or ensure that appropriate documentation is in place[66]. Smaller companies are less able to absorb these costs. As one manufacturer commented, "every time an inspector comes here it costs me money. Even if it is not a direct payment, I at least have to buy him/her lunch. It sounds small, but it all adds up." Another manufacturer said that "the government helps a lot, but then again there are a lot of bribes, so their benefit to my business is probably nett neutral."

Finally, ETPIK adds extra costs in terms of managing the ongoing verification of materials and products. Delays for inspection result in delays of sales, which provide the capital required for the next order. Several manufacturers spoke of the delays related to inspections. One claimed that, "this means I have to have my order all ready, and then call for an inspection. They might come within a few days and take two days to inspect my shipment. All of this means that shipment is delayed, which means my payment is delayed. I need the capital to order supplies for my next job."

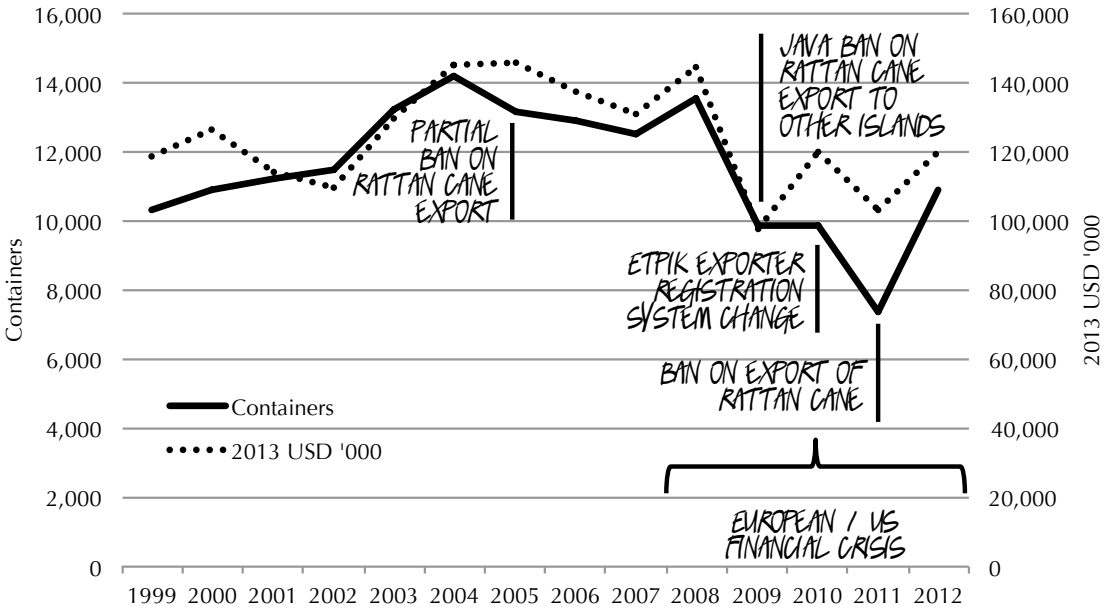
ETPIK was put in place for rattan effective 2010. In 2011, the rattan industry declined sharply and more sharply than wood furniture exports, which had already been under ETPIK (see Figure 7-2). The result was that several smaller companies went out of business, and influenced the decline of rattan furniture exports from Indonesia to a low not seen in years if at all. This condition created fertile ground for AMKRI's[67] message of initiating the ban. The 2009 ban on exports of rattan cane from Java was the "nail in the coffin" as one rattan processor commented. By this time, the rattan furniture manufacturing industry was suffering from all-time low sales and high prices of rattan cane. Media coverage at the time signalled several problems in the industry and the voices advocating the ban grew ever stronger until opposition were quelled and the ban was initialised (cf. Domestic rattan industry complains over gloomy prospect, The Jakarta Post July 26, 2010; Hanifah June 16, 2010; Rattan export limitation harms local industry, The Jakarta Post July 15, 2010).

66. Bribes are not unique to rattan and manufacturers cites concerns about a range of products.

67. The furniture association formed out of rattan furniture company desires to have the ban put in place.

ETPIK contributed to this support for the ban, according to rattan furniture manufacturers, by increasing transaction costs and driving many rattan manufacturers out of business for failure to comply or absorb extra costs. This made hardships on manufacturers more pronounced, making the ban appear to address a problem for which other solutions are actually required.

Figure 7-2: Rattan furniture exports from Cirebon Regency 1999 to 2012 by volume (containers) and 2013USD '000



Source: Dinas Perindustrian dan Perdagangan Kabupaten Cirebon. Most trade analysis in this study relies on import rather than export data, but here I use localised export data specifically to show how Cirebon was affected by ETPIK.

While ETPIK ensures a certain level of assurance that natural resource products, including rattan, are sourced legally, it does little to facilitate trust among trading partners in terms of meeting contractual obligations except that it is required in order to register as an exporter, which carries with it some assurances that I explore in the next sub-section.

7.1.2 Loyalty, trust and the maintenance of market access

One of the features of global market linkages is that trust and loyalty are important for maintaining relationships over long distances (Gereffi et al. 2005). Trust, as one manufacturer phrased it, "takes a long time to build up and is one of our most valuable assets". It is also at times hard to come by. The lack of trust combined with the inability to enforce contractual obligations, presents significant risks to trading partners. Trust has the power to provide or limit access to markets. This concept is

captured well in the following quote from a European furniture buyer who responded to an online survey for this study. The buyer is concerned about the difficulties in finding trustworthy trading partners. Although the comment is not about rattan specifically, it captures some of the trust issues among international buyers and Indonesian producers and some of the same regulatory issues.

> We deal with Indonesia because its the only place to get teak at a reasonable price even though in the end its a very high price due to all the faults and 'cheating' that goes on. Indonesia needs to set up an 'Ombudsman' type department to deal with complaints about factories and act promptly to sort things out, instead of treating complainers as the 'enemy'. Indonesia has a very bad reputation regarding honesty etc and needs to acknowledge it so it can change for the better. The constant cheating, usually over small things, causes entire shipments to be virtually un-saleable.-eg rather than buy a stainless steel bracket, they use a wood support...and a short screw to fix it- the short screw causes weakness in the timber, so someone leans on the table and the whole thing collapses as the support beam splits and breaks - cost of SST[68] bracket, probably $1.00- cost to importer and customer, many hundreds of dollars. I know someone who ordered tables with black marble centres - they arrived in England with black paint on the marble "because the marble didn't look so good." All importers nearly die from the stress of these things. As far as I can observe there is only one family that has internal ethics that refuse to compromise their standards...they should be used to train other exporters but they are extremely busy. The government should also clamp down on 'under name' exporting - ie factory uses some elses export License. One of the most difficult things people have to deal with is how nice everyone is to your face- and then struggle with their feelings of shock after the deposit has been paid.

There are three important points of analysis from this quote. First, the difficulty inherent in buying non-standardised products from around the globe. Not only must specifications be exact and interpreted similarly, but the manufacturer must be trusted by the buyer to meet the agreed upon specifications. Second, is that once a reliable relationship has been formed between buyer and manufacturer, it is a significant asset. Although the buyer suggests that they buy from Indonesia because of the price, the difficulty in finding trustworthy trading partners is clearly a concern. Third, trading relationships can continue without trust, although under some duress.

The same buyer as above expressed frustration with an inability to find a reliable trading partner as follows:

68. Stainless steel

> We have been in business 10 years and would have loved to have dealt with just 1 or 2 reliable factories which would have been the most profitable way for both the factory and us...but Indonesians are more interested in the money 'now', even though they always talk about 'long term relationships'. The factory owners run out and buy new cars , jewellery or houses instead of investing in their businesses (eg like carry stock for urgent jobs, pay their workers a decent wage etc). We get angry because they get paid before we see the goods (unless we add $1000's to fly over to QC[69] everything- if we do that, the factory makes sure nothing is ready to QC so we fly out leaving them with even more instructions which they ignore.

Despite the clear stereotyping in this buyer's statements, a core message in both of these quotes is that trust is difficult to build among international trading partners and that there is little ability to recourse on failure to comply with contract, making trading internationally especially risky, especially for buyers. But manufacturers also endure risks.

One manufacturer recalled a recent incident in which he prepared and shipped an order to a long-standing buyer and major UK importer. Someone hacked into the manufacturer's e-mail account and requested that the buyer transfer funds to another bank account (that of the thief). The buyer complied as sufficient proof of shipment had already been made by the manufacturer and the e-mail came from the manufacturer's e-mail address. When the manufacturer contacted the buyer requesting final payment, the buyer explained that he had already made the payment. After the business partners realised what had happened, they argued (hotly according to the manufacturer) over who should pay. In the end, they agreed that the buyer would pay the manufacturer for the shipment, but at a 30 per cent discount, and the next three orders would also be at a 30 per cent discount, which the manufacturer claims will be at a loss, but he is willing to absorb the loss on the basis of this being a generally reliable buyer. Although I was not able to arrange an interview with the buyer (the company is among the most guarded of the actors I attempted to include in this study), the trading partners' preference to continue working with one another shows that even major setbacks can be insufficient to motivate actors to seek out new market relationships.

69. Quality control

The Government of Indonesia and industry associations are aware of the hesitancy among trading partners to conduct business that involves risks associated with payment. Although ETPIK has several costs, especially to smaller producers, it is effective in some ways to facilitate trust among international trading partners. ETPIK enables Indonesian exporters to participate in a system known in the industry as 'Letter of Credit' (L/C). Essentially, banks in many countries are equipped to manage this system in which a payment may be made by the buyer to the seller internationally. The payment is held by the bank as credit until released to the seller after meeting conditions, usually involving the demonstration that the (inspected and verified) order has been shipped (30 per cent) and the remainder upon receipt of goods. While this system provides some assurances among international business partners, the minute details of specifications continue to prove troublesome, resulting in the preferences for long-term trading relationships as discussed above.

Even though, according to online survey data collected for this study, price is the top priority for buyers, they recognise the risks associated with changing suppliers and therefore prefer to continue to buy from the same manufacturer while trying to negotiate better prices with them. Ultimately, the ability of actors to develop trust among one another (or as facilitated by a mediating party or system such as L/C) reduces the risks associated with trading over great geographical distances, especially where there are perceptions of elevated levels of cheating or otherwise dishonest trading behaviour. Trust facilitates market transactions by enabling transactions in which actors may not otherwise be willing to accept risks. At the same time, trust creates a bond that makes changes in trading relationships difficult. Despite price increases, risks to changing trading partners may outweigh the costs of increased prices. Buyers and manufacturers are constantly pushing the limits of this trust through negotiating prices.

While most of this sub-section has so far dealt with trust as a feature in maintaining relationships among industry actors, the next sub-section explores how actors develop (gain) relationships in the first place.

7.1.3 Buiding relationships with buyers

One of the benefits of ASMINDO[70] and AMKRI to members is related to the struggle that furniture manufacturers have to find new buyers. In interviews, multiple manufacturers reflected on the relative ease of finding buyers in the 1990s and the difficulty now. On average, IFFINA[71] participants signed between four and five contracts (based on online survey data). Of the 50 manufacturer respondents who did not produce rattan furniture, difficulty in building relationships with buyers was rated the number one reason that they could not enter the rattan market (see Table 7-1). Related to that point, and also in Table 7-1, is the relatively high ranking of social identities related to ethnicity of other manufacturers (see ranking 6) showing that social identity remains important even at the international trade scale.

Table 7-1: Which of the following do you consider barriers to entering the natural rattan furniture business? (n=50)

Item	Total Score	Overall Rank
Difficult to find or build relationships with buyers	163	1
Other costs are too high compared to sale price	149	2
I/we don't have the capital to invest in a bigger factory	146	3
Market for rattan furniture is not strong right now	142	4
Difficult to find or build relationships with rattan cane suppliers	138	5
Other manufacturers that have ethnic connections with other countries have better market connections than I/we can make	137	6
I/we don't know how to design or innovate to reach new markets	131	7
I/we don't have the technology to develop innovative designs	111	8
Other reason	109	9
Costs of labour are too high compared to sale price	103	10
Cost of rattan cane is too high compared to sale price	71	11
Cost of bribes to government officials are too high	57	12
There are not enough rattan cane suppliers	55	13
Difficult to obtain proper permits	45	14
I/we can't get the proper operational permits	41	15

Source: Online survey 2

70. The older furniture association, from which many AMKRI members and leaders absconded leading up to the ban.

71. The ASMINDO furniture exhibition

Manufacturers and buyers rely heavily on the internet and other communication technologies, not only for negotiating sales, but also communicating ideas. Several manufacturers reported sending digital photos to the buyer at various stages in the manufacturing process to build trust and ensure that understanding existed between both parties. However, actors suggest that internet-based technologies are more useful for maintaing relationships than making them.

Those who place importance on trade fairs, like IFFINA and IFEX[72] suggest that face-to-face meetings remain key to gaining access to new clients and suppliers. There are few other places for buyers and manufacturers to meet since rattan furniture factory geographies are not easy to navigate for foreigners since factories are often not well marked and roads are inconsistently signed. GPS is not reliable in Cirebon Regency and therefore, buyers are unlikely to 'shop' for new suppliers if they are not familiar with the geography and language. Although there are some online portals (e.g. Alibaba)[73] for connecting geographically dispersed GPN actors, they were not commonly mentioned by manufacturers. One high-end manufacturer reported that his website is an effective way of marketing in Europe, where he keeps a warehouse for direct retail sales, but this was exceptional based on interviews.

Higher-quality and larger manufacturers have the upper hand in accessing foreign markets. Both tend to have higher profits and sophistication of operations, according to interviews and observation. They are able to employ, or are owned by, people who speak international languages better. In the case of the two highest-quality manufacturers in Cirebon, they have German and Japanese owners. Some of the other largest factories are owned by Europeans, some Filipino and foreign-educated Indonesians. All of these actors have advantages not only in language but in the ways of conducting business with international trading partners, often with access to designers in target markets. According to the survey, 95 percent of exhibitors in IFFINA 2014 had staff present who could communicate in a foreign language (n=69).

72. The AMKRI furniture exhibition

73. Of the suppliers of 'rattan' (including synthetic) on Alibaba on December 19, 2014, 1756 are listed from Indonesia. 2365 are from China and Hong Kong and 1194 are from Vietnam.

This signals the importance of international language skills among manufacturers and emphasises its importance for conducting business. Although the default trading language is English, Mandarin, Japanese, French and German are also conducive to developing market relations. Several of the major buyers also have employees who can conduct business in Indonesian, but this is not common according to interviews. Smaller factories with limited sales skills without the ability to communicate in a foreign language often hired so-called 'sales girls' to station their exhibitions at trade fairs. These contract workers tend to be young women with sales experience and good English, but with limited product knowledge, and in no position to negotiate a trade, much to the frustration of some buyers. One buyer suggested that increasing sales representative knowledge about the product and pricing would make the buyer experience better at trade fairs.

This analysis shows that social relations through trust and identity through ethnicity are significant to accessing markets and that although technology (i.e. internet communication applications) has a role in maintaining relations, actors continue to prefer face-to-face interactions to build new business relationships. Effective sales and relationship building skills are important for accessing markets, and smaller manufacturers often lack these skills. Just as they are with manufacturers and buyers, so too are social relations and social identity important for labour relations. Before exploring labour more deeply, I discuss briefly some other market factors that affect how actors benefit from rattan furniture, starting with design, followed by manufacturing costs and market preferences.

7.1.4 Issues of design and production knowledge in market access

One common concern of manufacturers and buyers alike was the lack of innovation in design. This was a primary barrier to accessing higher end markets for most manufacturers. "Eighty per cent of what we produce is the same as everyone else" claimed a manufacturer. The central issues are those related to the knowledge of how to design in a way that maximises access to export markets. I discuss these here. In this sense, design could mean style conducive to competitiveness in export markets, but also features that minimise costs, such as stack-ability, knock-down

designs, and production processes that minimise costs per unit. The limiting mechanism of access, as shown here, is knowledge of how to design and produce in such a way as to maximise benefits to rattan through export markets.

Innovative designs are attributed to only the highest-end manufacturers in Cirebon, of which there are two. One was started by a Japanese designer and another a German manufacturer. Both were second or third generation rattan craftsmen who moved to Indonesia after difficulties in obtaining rattan at various points in the history of rattan export prohibitions. The German-owned company hires freelance designers to make its designs and features the (mostly European) designers prominently on its website. The Japanese company was owned by an esteemed designer until his passing in the mid 2000s. These companies are exceptional in terms of design aesthetic, functionality, and production methods and are recognised as such by other manufacturers. There are a few other manufacturers that produce upper-middle range qualities and take design seriously, but most either follow the standardised plans from buyers or develop their own designs which are remarkably similar to others on the market.

One of the reasons that the two high-end manufacturers can continue to produce unique designs is because the production techniques they use are difficult to copy. According to a natural resource based view (Barney 1991; Hart 1995; Newbert 2008), the higher the imitability of a product, the lower the competitive advantage in markets. By making their products difficult to imitate, these actors maintain their advantage. They use custom made jigs, steaming process in custom-designed steamers, and are meticulous about the materials they use. They are willing to invest in more labour, have higher quality control standards, and take more time to produce a high-end product with innovative design. They exploit the materiality of rattan in ways that other manufacturers cannot because of lack of knowledge. Designs are built around the elasticity and flexibility of rattan that is difficult to rival in wood furniture. For example, *manau* varieties of rattan are particularly pliable and therefore can be bent into curves without the wastage that might be incurred with wood.

Another successful manufacturer used buyer specifications, which were not particularly innovative (but marketable and time-tested). Their advantage lies in their production processes. They are able to gain efficiency and meet small variance thresholds by customising assembly lines and assemblage spaces. They strip cane to core and peel themselves, have highly trained staff and extensive specialised quality control measures. They also reduce costs by producing their own electricity from pellets made from rattan waste. This production innovation allows them to maintain healthy profits even when they produce a lower-middle range product, especially if it is to be branded by a major retailer.

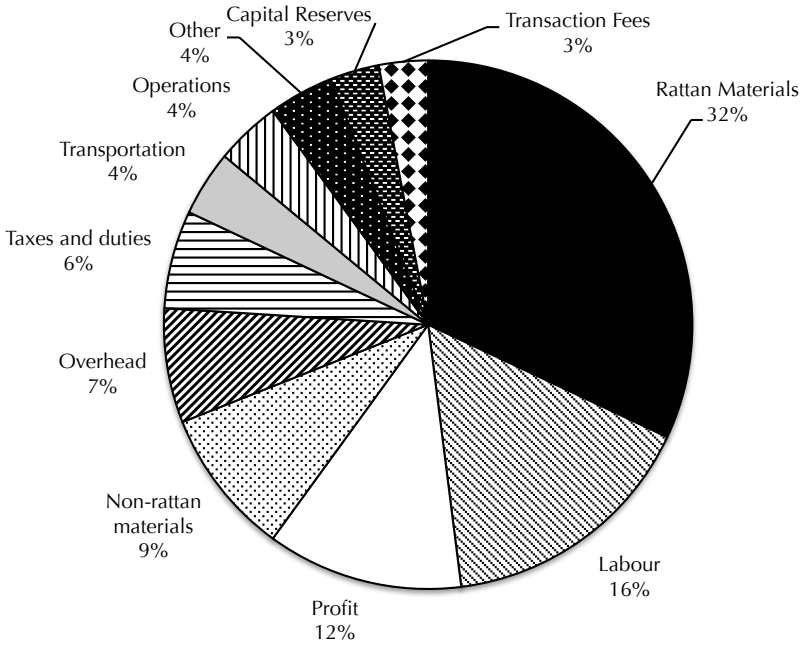
These cases are exceptions though. Most manufacturers use traditional techniques and designs that lack creativity. Many manufacturers realise and commented in interviews and online surveys that they lack innovation. They look to the government (notably less to the industry associations) to provide this training. The government of Indonesia has responded to this by developing the Rattan Innovation Centre in Palu, which had only commenced operations at the time of writing this chapter, but industry actors have little hope that this intervention will have impact. Manufacturers comment that government attempts to address this lack of creativity are not translatable into the markets. They cite the designs contracted by the Ministry Industry from Indonesian designers that explored new uses for rattan, such as a laminated rattan product that allowed rattan to be bent along a plane with a squared surface rather than the round form in which rattan is found naturally. Manufacturers claim that there is no commercial application for this as it competes too much with wood, which is more abundant and significantly cheaper. The Ministry of Industry also claims that innovation through using under-utilised varieties of rattan will be another area of development that will benefit rattan collectors through buyers, but so far there have been no marketable products from this innovation. Knowledge of design, then, remains a major barrier to accessing the higher end markets to which industry associations and government aspire. One of the primary motivations of manufacturers to improve design is to remain price-competitive by reducing costs. As the next sub-section shows, material costs remain the primary concern of Indonesian rattan furniture manufacturers.

7.1.5 Material costs

Processor control over the supply and price of rattan materials has a profound effect on manufacturers. The second biggest challenge for rattan furniture manufactures to grow their business, based on survey data, is the high costs of rattan material compared to the sale price (n=15 in online survey). Major buyers (especially from Europe and the US) put continual pressure on manufacturers to reduce prices every year. At the same time, the costs of rattan materials have stayed constant and the costs of labour have risen. This has resulted in tight profit margins, often around 10 to 15 per cent for manufacturers.[74] Figure 7-3 shows a cost breakdown of rattan furniture production costs based on an online survey. These data were verified through interviews, where similar figures were reported by rattan manufacturers. Costs vary significantly by product type, product quality and producer, so this figure serves as a very general indication of costs.

74. This figure is lower than what others have calculated in past years. In 1998, a study on a very small sample found profit margins of 13 to 21 per cent, with bigger factories on the upper register (Dwiprabowo et al. 1998). Another study in 2013 found that large factories to home industry made an average of 32 per cent profit (Effendi et al. 2013). The methods used to obtain these data are not sufficiently clear, so it is not possible to definitively assess the comparability of these data.

Figure 7-3: Cost breakdown of natural rattan furniture (n=11)



Source: Online survey 2[75]

These tight margins leave manufacturers vulnerable to market declines, which several manufacturers say is one of the reasons that so many small factories went out of business in 2008 and 2009 after several years of sustained decreases in sales and constant pressures to decrease sale prices. The buyer squeeze on prices is related to increasing shipping charges over the past two years. Several factories suggested that shipping costs have doubled within the last decade. The buyers, however, are pressured by their customers to maintain low prices and are under stiff competition from other furniture products, as seen in the next chapter. The manufacturers, then, have to respond to the pressures put upon them by other actors. These responses often include product diversification so that margins might increase through better sale prices and /or lower material costs. This means manufacturers are moving away from natural rattan products to meet market price demands and stay in business.

75. The survey was not explicit about bribes during transportation, but one factory owner reported that bribes amount to about USD 200 per truckload between the factory and port. The shipping cost is typically paid by the buyer, therefore this category is primarily ground transportation or in rare cases, domestic ocean shipping. Based on interviews, 'profit' is interpreted differently by different actors. More sophisticated factories (larger and higher-end) consider profit after all salaries, including CEO salaries have been paid. Smaller companies and sole proprietorships may consider 'profit' to mean that which is available to the owner, not calculating a separate owner salary under 'labour costs'.

7.1.6 How market preferences affect access to markets for Indonesian manufacturers

Markets are shaped, in part, by the preferences of consumers (Porter 1985). The ability to benefit from export markets is influenced not only by the mechanisms of access employed by manufacturers, but also by the market itself. An enquiry into access to export markets is therefore incomplete without understanding how market preferences influence Indonesian manufacturers.

Rattan manufacturers cite overall market demands and costs of rattan as the biggest barriers to growth (n=15 in online survey 2). Non-rattan manufacturers responded that the weak market for rattan furniture was the primary reason that they didn't produce the product (n=26).

International furniture buyers showed a preference for wood furniture over rattan, with the top five categories of preferred products to source from Indonesia being constructed of wood, according to the online survey (as shown in Table 7-2). Rattan seats were ranked seventh and almost 57 per cent compared to seats of wood.

Table 7-2: In order of importance, what will you look for in Indonesian furniture fairs?

Item	Total Score	Overall Rank
Tables of wood	688	1
Seats of wood	669	2
Living room furniture of wood	555	3
Other furniture of wood	555	4
Bedroom sets of wood	529	5
Accessories	402	6
Seats of rattan	381	7
Seats of other material	233	8
Living room furniture of rattan	231	9
Tables of rattan	228	10
Tables of other material	218	11
Bedroom sets of other material	217	12
Living room furniture of other material	212	13
Other furniture of rattan	210	14
Bedroom sets of rattan	166	15
Other furniture of other material	165	16

Source: Online survey 2 (n=69)

This preference in markets translates to manufacturer products, which are positioned to meet demand. Of 114 manufacturers in the online survey, 86 per cent were engaged in wood furniture production. Rattan is the second biggest category at 20 per cent. For both manufacturers and buyers, the indoor residential market remains the most important, as shown in Table 7-3.

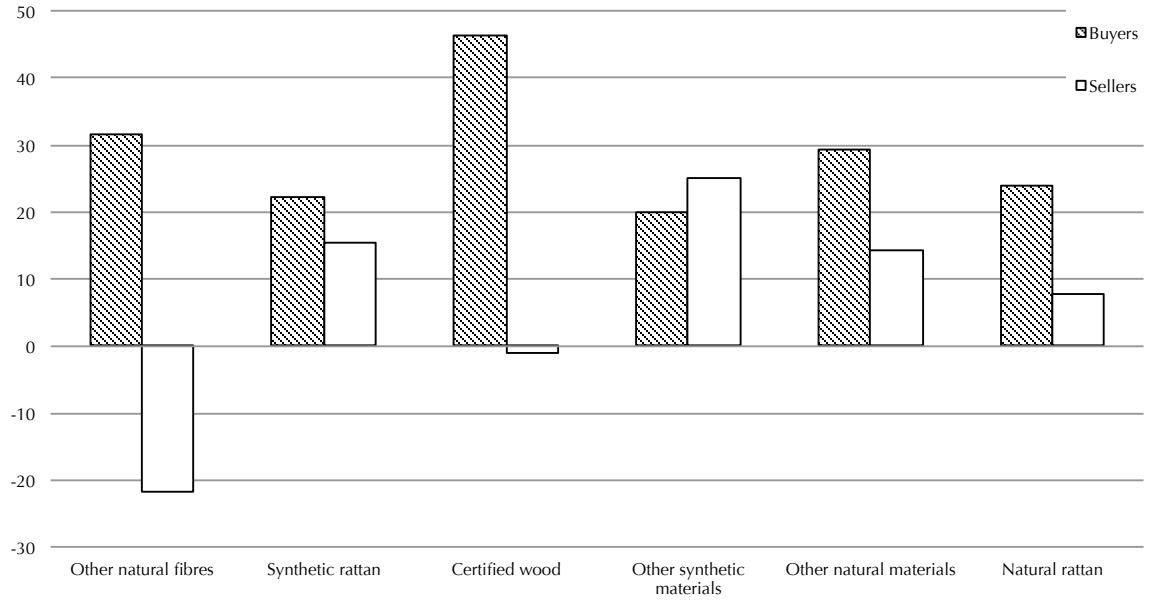
Table 7-3: Importance of markets, ranked by manufacturers

Market Sector	Total Score	Overall Rank
Residential indoor	547	1
Commercial restaurant and hotel indoor	355	2
Residential outdoor	242	3
Commercial restaurant and hotel outdoor	218	4
Public spaces indoor	203	5
Commercial office indoor	165	6
Public spaces outdoor	129	7

Source: online survey 2 (n=106)

Looking toward the future, GPN actors suggest that certified wood products (such as Forestry Stewardship Council) offer the highest growth potential, followed by other natural materials and then natural and synthetic rattan (n=38). I asked respondents about their predictions for the future of various product markets over the next five years. Figure 7-4 shows the average responses by buyers (importers and retailers) and sellers (exporters and manufacturers) of Indonesian furniture, scaled as increasing or decreasing on a 100 point scale. While buyers predict increases in natural fibre and certified wood products, sellers see these markets declining. This could be related to the buyers' preferences or obligations for certified environmental products and the sellers' knowledge of the difficulties of obtaining those permits. Natural rattan (as opposed to synthetic) is predicted by all actor types to increase within the next five years although buyers predict more increases than sellers. This could be related to the fact that the buyers tend to be less aware of the constraints in producing rattan furniture.

Figure 7-4: What do you think will happen to the market share of the following furniture products in the next five (5) years?



Source: Online survey 2. Average response on a scale of -100 to 100 with negative numbers showing a decrease and positive numbers showing an increase. Buyers n=46; Sellers n=52.

Later, in Chapter 8, I will explore global markets for synthetic rattan more. Synthetic rattan was developed in direct response to the shortage of supply of natural rattan cane (Dransfield 2002), ostensibly linked to Indonesian trade policies in the 1980s (according to industry actors, but could not be verified). Manufacturers of synthetic rattan have become increasingly creative and skilled at making polyethylene products resemble natural products through technological advancements. Deliberate imperfections in colour, texture, and variable sizes mimic rattan's natural attributes. Only in the last decade has Cirebon started to produce its own synthetic rattan materials, with five factories in operation at the time of fieldwork. Other materials are produced in Surabaya, and imported from China and Germany.

Synthetic rattan furniture is usually built on an aluminium frame. The costs of materials is higher than natural rattan in Indonesia, but there are considerable savings in labour, finishing products, and wastage. Aside from not having to be cut into strips, standard lengths and dimensions make it much faster to weave, according to manufacturers. According to interviews, the net result is a more profitable product than natural rattan for those enterprises that have become particularly skilled at designing, constructing and marketing the products. Several factories interviewed have migrated to synthetic products, in part, because of the difficulties in accessing

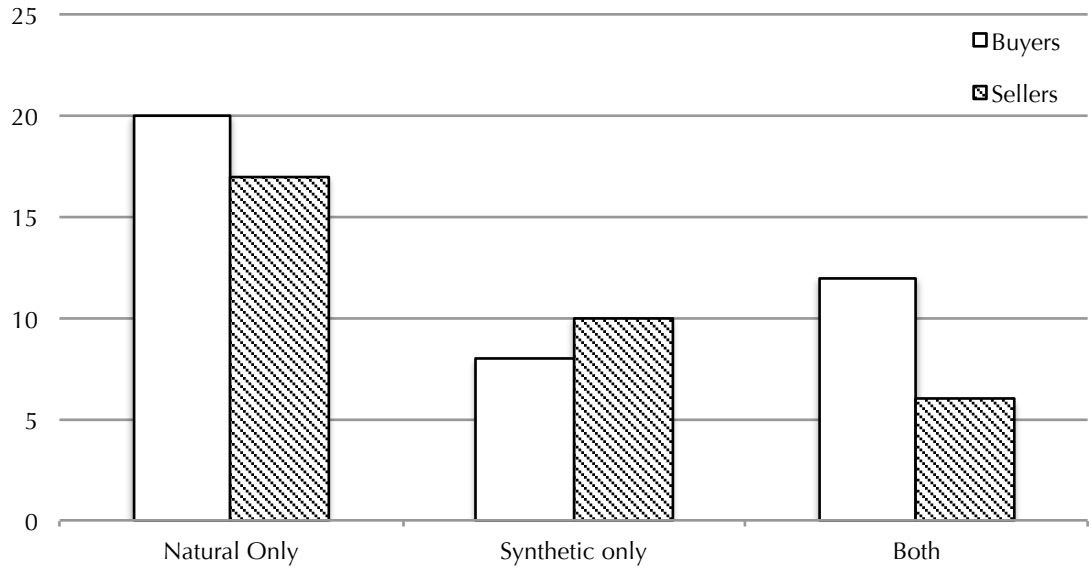
natural rattan stock. Some of the most profitable companies have either moved most of their production to synthetic rattan or started subsidiary companies and factories to produce synthetic rattan furniture.

Whether or not synthetic rattan is affecting natural rattan markets is a point of considerable disagreement among rattan actors in Indonesia. While ASMINDO and AMKRI leaders adamantly rejected the notion that the products compete with one another, several manufacturers and buyers suggested they do. The chairman of AMKRI explained that synthetic products compete with synthetic products and natural with natural, especially when natural rattan is an indoor product and synthetic an outdoor product. However, before the emergence of synthetic rattan in the 1980s, natural rattan was used both indoors and out. In many places it still is, as exemplified by observation of outdoor cafes in the UK and Netherlands during my fieldwork. Rattan GPN actors emphasised the benefits of synthetic rattan in outdoor applications, primarily related to durability against the elements.

Many of the mid-quality rattan furniture manufacturers in Cirebon diversified to synthetic rattan products within the last five years, although there are no data to confirm exactly how many and how synthetic rattan sales have performed. Manufacturers interviewed cited an increasing market and the continued difficulty of obtaining natural rattan materials. Chapter 8 shows that shops in the UK confirmed that synthetic rattan markets are increasing rapidly while natural rattan are at a standstill or decreasing. One company representative interviewed in Cirebon explained that the company was producing 100 per cent natural rattan furniture until 2008, when they took their first order for synthetic rattan. Synthetic rattan has a similar weaving process to natural rattan and is not a difficult transition for most companies. In 2013, synthetic rattan products comprised 90 per cent of their sales, with indoor applications a major market segment. They describe themselves as a "holdout" for natural rattan since the synthetic market trend started around 2003, but eventually the difficulty in sourcing natural rattan and the demand for synthetic has driven them to produce synthetic rattan furniture. About half of Indonesian manufacturers and buyers of Indonesian natural and synthetic rattan furniture trade

only natural rattan, while 30 per cent trade only synthetic rattan and about 20 per cent trade both. Figure 7-5 shows synthetic rattan has become significant to buyers and manufacturers alike.

Figure 7-5: Manufacturers and buyers trading natural and synthetic rattan (n=73)



Source: Online survey 2. Buyers n=40, manufacturers n=33

The problem, as Chapter 8 will show, is that where Indonesia has a competitive advantage because of its control over the supply of natural rattan, it has no such advantage in synthetic rattan and therefore has to compete more with Vietnam and China. Indonesia has no price advantage over the material costs, and in many cases, imports the synthetic material from other countries.

Larger factories have been better able to incorporate synthetic materials into their businesses. A rattan wholesaler in Cirebon also reported that, "especially the larger factories have mostly moved to synthetic rattan." Other wholesalers share this opinion. Smaller factories, and especially home industry workers, rarely incorporate synthetic materials into their product offerings. Synthetic rattan furniture continues to be made primarily in the factories rather than in homes, even through there is no finishing involved and the synthetic material is generally woven over a metal or wood frame, which would be possible to do in a home industry environment. Home industry actors interviewed say that they are more comfortable with natural rattan and that they have never been asked to produce synthetic rattan furniture.

Synthetic rattan, therefore, not only cuts rattan cane collectors, bosses and processors out of the GPN, but also prefers the larger actors within the manufacturing processes. It may also maintain the low purchase price demands of rattan furniture by offering a cheaper, and more available competing product with several functional advantages. This leads to a buyer's market for supplies, where natural rattan is a producer's (processor's) market due to the limited number of suppliers. As Homma et al. (1992) suggest, alternative markets and products often serve to devalue NTFPs. Buyers, for instance, frequently use comparable products, not only synthetic rattan, but also water hyacinth, reed, and banana leaf products, to negotiate the prices of rattan.

Alternative products affect Indonesian actors' ability to benefit from rattan. This has implications on the scale and shape of labour in Cirebon. The next section shows how changes in rattan furniture markets affect factory workers in rattan manufacturing facilities.

7.2 Labour relations in Cirebon

Labour is a significant factor in the production of rattan furniture and changing labour relations are insightful to understanding the industry as a whole. According to interviews, factory workers earn IDR 25,000 to 50,000 (USD 2.50 to 5) per day, depending on the requirements of the job and seniority with the company. Senior managers of the largest factories earn up to IDR 10,000,000 (USD 1000) a month, but this is unusually high and is for a company of almost 3500 employees and subcontractors. Based on interviews with factory workers and owners, factory workers are often related to one another and provide references for friends and families to work in the factory. In one factory I interviewed, three generations had worked their entire careers at one company. This correlates with the location of the factory. More remote factories have more direct neighbours and family and larger more central factories have more diversity. Employees tend to stay with the same company for many years at several of the factories, according to interviews with managers and workers. Longstanding companies had employees who had worked there for forty years and in some cases three generations of a family worked in the same factory. This is quite typical of many of the factories. The more remote the

factory, the longer employees tended to stay, but even in areas of concentrated factories, employee turnover was quite low in most factories. If employees leave the factory, it is often to other industries in construction or other job markets such as Jakarta, according to interviews. Factory owners report that it is increasingly difficult to compete with jobs in other sectors, especially construction, which can afford to pay better salaries (cf. Abdurahman November 23, 2013). The Cirebon economy is also diversifying into more service-oriented and other commercial activities (Fahmi et al. 2014).

Markets shape labour relations in several ways. One is through pricing demands, and another is through notions of human rights, especially regarding minimum wages, working conditions, and child labour. Together, these market preferences have developed two types of movements among rattan manufacturers in Cirebon: one from factory to home-industry and the other from home industry to factory.

7.2.1 Labour shifts from factory to home industry

Compared to ten years ago, many firms have an increased reliance on outsourced labour, according to manufacturer interviews. As Hymer (Cohen et al. 1979) theorises, factory ownership is important when production is the dominant constraint, but as design issues become more prominent, development and marketing become paramount, requiring less infrastructure. Unstable markets and reduced orders have forced layoffs in many factories in Cirebon. In keeping with capitalist theories, where "'sweated' labour can undersell factory products" (Hobson 1897), factory owners in Cirebon appreciate the price advantage they can derive from the home industry system when contracts are variable, despite efficiency gains in the factory, also requiring specialised knowledge and capital costs. Former factory workers have taken up sub-contracted work in which they are paid per piece working from home or in small communal working areas. Home industry workers tend to be family and neighbours. A single cluster might have 50 workers and one member who is charge of negotiating with the buyer and sometimes quality control.

Subcontracted workers command from IDR 13,000 (USD 1.30) to IDR 16,000 (USD 1.60) per day this way. They work in teams of three of four workers, each focussing on a different component of a product. They are typically paid about IDR 100,000

(USD 10) for a chair, 90 per cent of which is material costs. A team can produce three to five chairs per day, depending on the complexity. They are issued an advance for the purchase of materials, which they most often select themselves. Although the factory could obtain better prices by purchasing the materials in bulk, they run the risk of a poor quality product being blamed on the materials provided rather than the craftsmanship. In order to mitigate that risk, factories pay home industry workers enough to purchase the materials on their own. They usually go to the cane grocer and choose cane-by-cane that which they wish to purchase.

7.2.2 Labour shifts from home industry to factory

One manufacturer, whose major client is an international brand subject to scrutiny on human rights issues, experienced the need to concentrate production in the factory rather than home industry. One of their product lines was previously made entirely by women in home industries. The buyer wanted confirmation that minimum wage was paid for the production of the rattan baskets (IDR 1,081,300 [USD 108] per month), which is in accordance with Indonesian Law, but inconsistently practiced and not applicable to contracted work. The manufacturer was enthusiastic to comply but the buyer was not willing to adjust the purchase price. The manufacturer could only produce the baskets at the stipulated price by using more efficient systems in a factory setting. The production therefore moved from home industry to factory and the women in the communities who could no longer manage their double burden of home and work responsibilities, lost their jobs. Factory automated jobs can reduce labour requirements by 20 per cent according to the manufacturer, but require steady sales contracts.

Especially for home industry production of rattan, it is common for families to work together to produce rattan products. As one mother said, “it is like school. The future of Cirebon is in rattan, so better that my children learn how to weave rattan.” In one instance with the same international buyer and Indonesian manufacturer, the manufacturer set up an educational after-school programme for children to learn weaving techniques. It was agreed on with the village that this was something that was of cultural value to the parents and the children. The objective of the program was not production but learning how to do better weaving. Almost all rattan workers

in Cirebon learned the craft from their parents and have done it since childhood, according to interviews in Cirebon. They consider it part of their collective social identity, much in the same way that batik fabrics are part of the cultural heritage in Java (Aragon 2011), or weaving in Nusa Tenggara and Bali (Coleman & Hann 2008). When the international buyer audited the manufacturing process and saw children weaving, they deemed it too high a potential risk for misinterpretation as chid labour. The programme was immediately shut down.

In both these cases, the changes were made at the behest of the buyer and with protest from the villages. Similar findings have been made in 'ethical' certifications for food production regimes in which the rules that placated consumer ethics resulted in changes, or even injustices, for producers (cf. Byrne et al. 2006). Similarly, Barrientos and Smith (2007) found that social accountability standards and ethical compliance codes often did little to benefit workers and failed to address embedded social and labour relations.

In this way, the buyer controls access to markets by its perceptions of human rights issues combined with its perceived cost limitations. Other remarks were made by manufacturers with strong ties to large international buyers, regarding health and safety issues and buyer's concerns that the environment could not be controlled in home industry settings.

There are therefore two models of labour taking shape in Cirebon. One is a movement from factory to home industry, to better adapt to variable market demands. The other is from home industry to factory for those contracted to large, and especially internationally scrutinised buyer, with larger and more stable orders of a limited product range. Both respond to specific market demands and are therefore shaped by those market actors.

Although social pressures threaten this system on the one hand, other social pressures, from the handicraft actors themselves, contradict buyer perspectives of social responsibility by preferring to work in home compounds than factories, even

when wages are less. They cite more stable work and a preference for working with their families. This is essentially a question of framing the ethics of the ways in which actors participate in the GPN (see also Fraser 2009 on framings of justice).

The issues around market and labour relations mechanisms of access that I have described precipitated the need for industry associations to further build relations with international buyers, improve industry standards, and ensure that regulatory frameworks in Indonesia are conducive to benefiting from markets. Next, I discuss these organisations and their fight for legitimacy among industry actors.

7.3 Industry associations: ASMINDO and AMKRI

Export markets are a critical mechanism of access for furniture manufacturers. The social and labour relations they build, and capital, technology and knowledge they develop, all orient them toward improved market access. To further the aims of benefiting from markets by enhancing social relations, entering new markets, and ensuring that a regulatory framework is in place that support their development, the rattan material and furniture industries have built and engaged with industry associations. Indonesia has two major industry associations representing furniture manufacturers: ASMINDO and AMKRI.[76] These organisations are membership-based institutions built on furniture manufacturers and associated companies. Leading up to the ban, ASMINDO's membership included furniture (including rattan) factories and APRI, which represents the rattan material processing companies that benefited from the export of rattan, among other furniture GPN actors. ASMINDO therefore had two juxtaposed perspectives on whether or not to support the ban, which led to what both ASMINDO and non-ASMINDO actors interpret as an overly cautious approach to the issue. Many ASMINDO members with rattan factories, including some of its leadership and the general manager, were not satisfied with the deliberations and created AMKRI in 2007.

76. ASMINDO and AMKRI are introduced in Sub-section 4.6.8 on page 127.

According to interviews with AMKRI and ASMINDO, AMKRI emerged from this frustration with the perceived inability or lack of will within ASMINDO to deal effectively with the rattan supply strains on some of its members. It had the broad support of rattan manufacturers in Cirebon; at least the promise of making rattan better available at a lower price did. AMKRI's proposed solution of the ban was generally accepted among furniture manufacturers as a way to achieve this end. In effect, it gained legitimacy among industry actors by holding a strong pro-ban position (cf. Elsbach 1994), even though the motivations of the new members may have been divergent. For rank-and-file members (rattan furniture manufacturers), the ban (and initial support for AMKRI) was about accessing rattan more easily, at a higher quality and lower price. For the leadership, there are promises of other direct benefits from increased sales that could be expected from sponsored participation in international furniture exhibitions.

AMKRI used its leaders' strong ties with the Ministry of Trade to ensure that its position was heard and instil the confidence of its members, a condition similar to the 1988 ban in which a few industry actors were influential in passing the law (Dove 1993). Several AMKRI leaders were members of the same coalition with the ruling Democratic Party, which held power in Indonesia until October, 2014. This, according to industry insiders interviewed, was key to their success in implementing the ban. Although almost all rattan furniture manufacturers I interviewed expressed support for the ban, they did so "if it will result in better market access" as stated by one manufacturer. Only one manufacturer supported the ban but with the hesitation that if the ban is not accompanied by increased capacity building among manufacturers, the ban could reduce the amount of rattan furniture available in the market, make it more difficult to source, and ultimately buyers and consumers will forget about rattan. I tested this idea with other manufacturers I interviewed, and most believed it was unlikely that rattan would be forgotten in the global market place because it is a "unique product", as stated by several manufacturers, and emphatically by the chairman of AMKRI. I explore this issue more in the next chapter.

At the time of the ban, export quotas in rattan materials were in place, championed by ASMINDO. ASMINDO continued to espouse the concept of export quotas rather than a ban, up the point when the decree on the ban was passed (EDJ May 28, 2009; Yulisman August 5, 2011). AMKRI argued that the quotas were ineffective because they continued to favour foreign manufacturers while Indonesian manufacturers suffered from a deficiency of rattan material and price competition with companies in importing nations. After four years of working closely with the Ministry of Trade, AMKRI was successful in lobbying for the ban, which took effect on January 1, 2012.

With the ban in place, AMKRI was forced to prove its relevance to its membership in order to maintain their support. Its strategy was two-fold. First, to seek legitimacy among a broader range of actors. The original name for AMKRI was The Association of Indonesian Rattan Furniture and Handicrafts, the "K" standing for *kerajinan*, or 'handicrafts'. In 2012, the "K" was changed to *kayu*, meaning 'wood'. This change signified a shift from focussing on only rattan products to a broader spectrum of furniture products. The removal of 'handicrafts' from its name is also significant as its focus, as will be explored shortly, has been primarily on larger producers, despite the rhetoric of saving the jobs of home industries in its advocacy of the ban. In 2013, the organisation changed its name to the Indonesia Furniture and Handicraft Association but commonly goes by the Indonesia Furniture Association.

Initially, and until 2013, most rattan manufacturers remained members of both AMKRI and ASMINDO according to interviews with ASMINDO. In 2013, AMKRI representatives stated that they represented over 700 furniture producers.[77] As at June 7, 2012, the members listed on the AMKRI website amounted to 171. Of those, some members interviewed were not aware that they were members. In any case, AMKRI has proven itself a force within the Indonesian furniture industry– not just rattan furniture and effective at building the awareness of Indonesian furniture both

77. How this figure was tabulated is unclear.

among government representatives and abroad. For the reasons discussed in the remainder of this section, by the end 2014, according to an ASMINDO leader, most of the rattan manufacturers had also become members of, or moved to, AMKRI.

The second primary strategy that AMKRI employed was to gain legitimacy as a representative of the Indonesian furniture manufacturer through the annual trade fair. What industry insiders describe as the 'jewel' of ASMINDO, the annual International Furniture & Craft Fair Indonesia (IFFINA), was strategically and systematically dispossessed by AMKRI in 2014. The annual event was held in March, timed with ASMINDO's counterparts within Asia. Buyers co-ordinate their visits to each fair to maximise their time, and in 2014 5000 flocked to visit more than 450 exhibitors (ASMINDO private communication). These events are important for buyers and sellers alike. For buyers, they get a good sampling of what is available in Indonesia and for sellers, they get access to new markets. According to the IFFINA 2014 online survey, 26 per cent of buyers and 44 per cent of sellers reported signing contracts or purchase orders at the event (n=108).

In 2013, ASMINDO held IFFINA in the largest and best-equipped convention centre (Jakarta International Expo) in Indonesia as it had done since 2008. The facility has several open buildings and is host to most of the major fairs and exhibitions in Indonesia. The amount of profit they derive from the fair is confidential, but it is ASMINDO's main source of income according to an ASMINDO leader. When ASMINDO went to make its booking of the convention centre for 2014, it found the facilities booked. ASMINDO explored the second and third largest venues, which were also booked. They explored Yogyakarta, a city known as a hub of creativity, but found the facilities booked there as well. ASMINDO representatives suggest that they were on a similar schedule to past years and that it was highly irregular that the facilities would be reserved so far in advance. Although lacking verifiable evidence, ASMINDO leaders are confident that AMKRI was responsible for the freeze out, which may seem extreme, but plausible given the following occurrences. AMKRI has no comment on the issue.

ASMINDO previously worked with an event planning firm to manage the marketing, registration and presentation of the fair called *PT Pameran Niaga Indonesia*[78], the representative of UBM Asia[79] in Indonesia, which organises similar events throughout Asia. In 2013, ASMINDO was informed that UBM would no longer be available for IFINNA. They later learned that AMKRI was planning its own fair, which they called the Indonesia International Furniture Expo (IFEX). They had contracted UBM (along with the IFFINA contact data) and the Jakarta International Expo Centre, effectively undermining ASMINDO. The Ministries of Trade and Industry also provided support for IFEX and continued to support IFFINA. The Ministry of Industry had shown discontent in past years with their exhibition being moved to less desirable locations in IFFINA (Kementrian Perindustrian 2012).

Finally, ASMINDO was able to confirm a location in which they would have to erect temporary tents to house the fair, but it was, as one buyer phrased it, "crappy" in comparison to the previous year and that tradition which was carried on by IFEX. Another commented that "IFFINA 2014 was a really bad exhibition." On observation, the second biggest convention centre (which ASMINDO attempted to book), immediately beside the tent-facility built by ASMINDO, remained empty for the dates of IFFINA. According to ASMINDO, the facility managers said that the previously scheduled event was cancelled at the last minute. Compared to the well-laid out, documented, and advertised IFEX, IFFINA paled. In 2014, IFEX included 6113 buyers and 400 exhibitors over 17,000 square metres of exhibition space (Trade Ministry officially launches second edition of Indonesian international furniture expo, IFEX 2015 2014). One IFFINA attendee made reference to IFEX by commenting that "last year there's other Furniture Fair which is closely on the same dates with better place & bigger participants."

This would prove a boon for AMKRI and a setback for ASMINDO, but ultimately, the buyers and sellers were left confused. One buyer at IFINNA 2014 commented that "this event is so much worse than last year, what happened? All the displays are

78. Company name. PT means 'Limited Company'

79. Company name.

smaller, and last year it took me two days to cover. This year it only took an hour or two." He was not aware that IFEX had moved into the IFINNA location, look and feel (complete with banners reading "No Copy" alluding to message that IFEX is the original trade show). Another buyer at IFEX expressed frustration that he had no idea that there were two events that took place. He thought it was the same as last year. According to several ASMINDO leaders, AMKRI had a notice on their website that IFFINA was cancelled and that the new name for the event was IFEX, although the notice was taken down when ASMINDO complained. This confusion and frustration among buyers may prove an undesirable side effect of the creation of AMKRI as an institution that has isomorphed to closely resemble ASMINDO to many industry actors (see Scott 2008 for more on how organisations tend to isomorph to resemble one another over time).

The two events operated in their respective locations in 2015 as well. ASMINDO is attempting to capitalise on its membership in the ASEAN Furniture Industries Council (AFIC), which has its headquarters in the ASMINDO offices in Jakarta. This is a key relationship because it aligns IFFINA with the other major Asian expos. For 2015, IFFINA was sandwiched tightly between Singapore from March 13-16 and the Philippines March 15-18. This was a strategy to make the IFEX dates inconvenient for buyers wanting to visit several countries. IFFINA was held March 14-17 while IFEX was March 12-15, squarely within the Singapore time slot. Due to the scheduling, if a buyer wanted to visit Vietnam or Thailand, Singapore and Indonesia, they would have to spend March 11-12 in Thailand or Vietnam, 13-14 in Singapore, 15-16 in Indonesia and 17-18 in the Philippines. This means that IFEX would already be over by the time the buyers reached Indonesia. According to the online survey conducted for this research, and as seen in Figure 7-6, Singapore is the most popular non-Indonesian AFIC furniture fair among buyers planning to attend IFFINA, with 62 per cent also planning on attending Singapore.

Figure 7-6: Buyer planned participation in other AFIC 2015 furniture fairs (n=71)

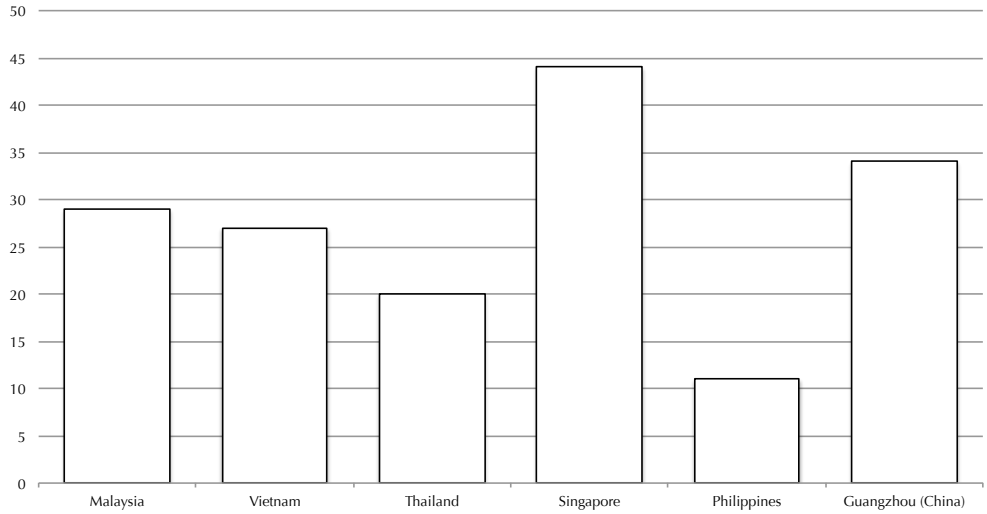


Chart bars are sorted chronologically, with Indonesia between Singapore and Philippines. Source: Online survey 2.

Several manufacturers suggested, as one owner phrased it, "we don't have time for all that political stuff among the associations. We just want to do business." Another manufacturer commented that "AMKRI provides a service to its board, not the members. The board members are the ones who go to trade shows, board members are the ones who get new business. They say that they are promoting the industry, but they are promoting their own factories", signalling elite capture within the leadership of the trade associations. Both organisations admit that association-sponsored participation in international trade shows (not just in Asia, but in major import markets like Europe and USA also) are a perk for board members and explain that it is difficult to choose such opportunities among all members. These events provide opportunities for wide exposure for exhibiting companies, according to industry actors. Since the boards are democratically elected in general meetings, neither organisation sees this as an issue. While there are benefits to being the leadership of either organisation, the rank-and-file members find value in the organisation that hosts the annual furniture trade fair, which presents opportunities for manufacturers and buyers to meet and make deals.

This discussion is intended to show the ways in which AMKRI sought legitimacy first through its strong pro-ban stance, and then through the expropriation of the all-important furniture trade fair. This, of course, highlights the depths of the fissures between these organisations and the battleground over legitimacy in the eyes of

international and domestic actors, as well as market access. In contrast, the rattan materials processors also have an association (APRI), but they are more united due to their singular focus on rattan materials while ASMINDO, especially serves a range of interests, including APRI's, but also wood, rattan, and other furniture and handicraft producers. As AMKRI recruits more non-rattan furniture producing members, it also will experience demands from a wider range of members. With the exception of APRI and similar producer and processor-based organisations, the membership profiles of the AMKRI and ASMINDO are becoming more similar.

Furniture manufacturers are interested only in improving access to markets and are not generally caught up in the turf war between ASMINDO and AMKRI while international buyers are unaware of the differences for the most part, and are sometimes annoyed at the dilution of the Indonesian furniture industry into two organisations. International buyers are impressed by the presentation of IFEX, following the old IFFINA model, but the success of ASMINDO's strategy to better align the dates with other AFIC members remains to be seen. While the organisations battle for primacy over the furniture fairs (thus gaining legitimacy from their members and benefits to the leaders' factories), their members, now the same population, generally, of furniture factories, hope that market access will improve. AMKRI has positioned itself, and especially its leadership, to benefit from the rattan GPN through market access gains through its strong ban-focussed purpose and relationships with the Ministry of Trade, while ASMINDO has long-standing recognition internationally and a broad membership base and pins its hopes on the loyalty of its members and AFIC.

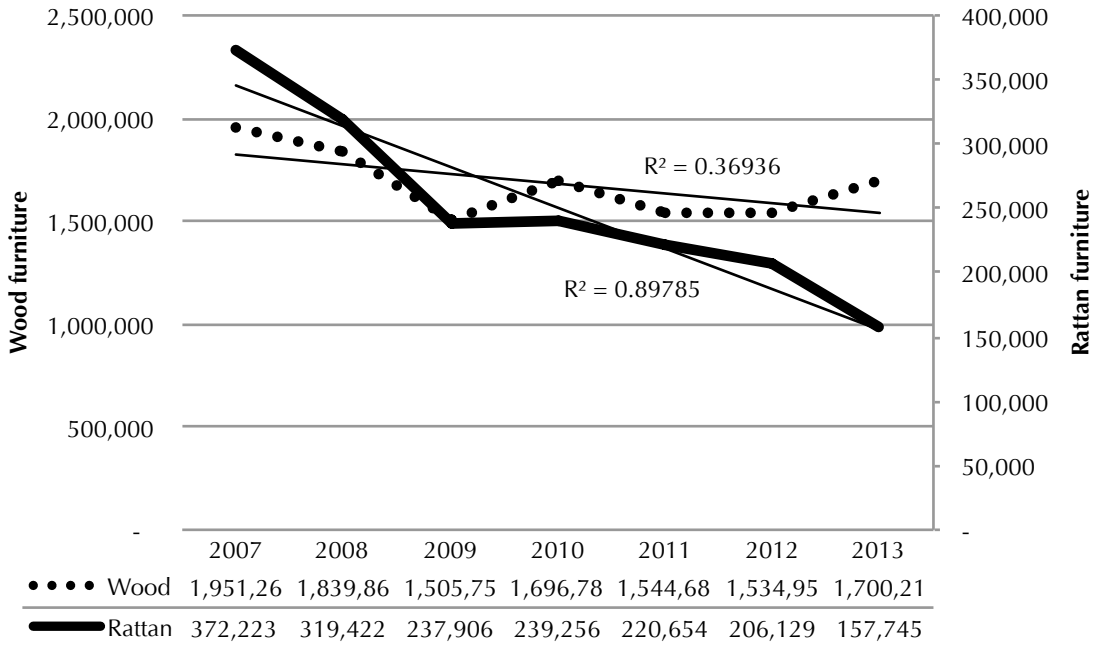
So far, this chapter has focussed on mechanisms of access related to markets, social relations, labour relations, and knowledge that facilitate or obstruct actor access to rattan. In the next section, I focus on external governance factors that affect access by looking at the effect of the ban on access to rattan furniture markets.

7.4 The effect of the ban on access to rattan furniture markets

As shown in the Chapter 6, the 2011 ban on the export of un- and semi-processed rattan had an impact on the ability of local rattan collectors and processors to benefit from rattan. I have also shown that it had little effect on the supply problem among furniture manufacturers. But, what has the effect of the ban been on Indonesian rattan furniture sales, which it was designed to improve? I will address that question here by analysing overall imports of Indonesian furniture by international buyers. In the next chapter, I will take a closer look at the global rattan markets, but here focus on how the markets has changed over the past several years, and what that has meant for manufacturers in Indonesia.

Figure 7-7 shows that rattan furniture imports from Indonesia by other countries have been on a steady decline that was accentuated when the ban took effect. I include wood furniture as a reference. In comparison, both markets have declined, but rattan more rapidly than wood. From 2007 to 2013, rattan furniture markets declined 53 per cent while wood markets declined 12 per cent. The epoch that precipitated the ban shows a steep decline in Indonesian exports, which levelled off in 2010 after a ban on the export of rattan from Java was put in place, ostensibly ensuring greater availability of rattan for Javanese manufacturers and forcing processors on other islands to alter the ways in which they export rattan materials. This levelling off is explained by processors as a temporary delay in exploring new ways to export rattan by either avoiding Indonesia's main ports for export, or by "being creative" as one processor phrased it, about how rattan can be exported through Java. At the same time, the US/EU financial crisis started to affect overseas orders. A steady decline continued from 2010 to 2013 without any positive impact of the ban taking effect in 2012. In 2013, manufacturers predicted that the ban would require about year to take effect, as buyers shifted from furniture suppliers in other countries to Indonesia. 2013 data show that this has not yet happened, and as the US and EU began to come out of recession, and in the second year of the ban, imports from Indonesia fell again while wood furniture exports increased.

Figure 7-7: Total rattan and wood furniture imports from Indonesia 2007-2013 (2013 USD '000)



(Source: UNcomtrade) Wood = HS 940161, 940169, 940330, 940340, 940350, 940360; Rattan = HS 460122, 460212, 940151, 940381

While the US/EU recession may have contributed to decreases in markets, wood furniture has recovered whilst rattan furniture has continued to decline. Using wood furniture as a reference point, there was a steep decline in 2009 when the clarifications of ETPIK were enforced, but that decline rebounded as manufacturers found their footing and qualified for ETPIK (discussed more in Sub-section 7.1.6). There is otherwise a general decline in the wood market, but sales of wood furniture fell only one per cent in 2012 compared to 2011 but then rose 11 percent in 2013 compared to 2012 while rattan fell seven percent in 2012 and another 23 per cent in 2013.

Figure 7-2 on 190 uses a different dataset– that of exports from Cirebon Regency. It shows that export volumes declined sharply after the European financial crisis began in 2008, affecting 2009 orders. The figure also shows that in 2010, the value to volume ratio went up considerably. This was timed with the implementation ETPIK. These drops fuelled the policy changes discussed in the next sub-section.

There was what appears to be a boost in sales in 2012, when a ban took effect, but this data has to be interpreted with caution. First, Figure 7-2 shows Cirebon data only. It is therefore not representative of the entire country's exports. Second, along with the ban, law 36/2011 was passed. This law confirmed a new verification system and subsequently subcontracted to the government-owned corporation SUCOFINDO to conduct inspections of rattan furniture for export and assign the HS codes.[80] The significance of this for understanding the effect of 35/2011 cannot be understated. Prior to 2011, furniture exports were based on the percentage of material embodied in the furniture. Therefore, if a chair was 51 per cent wood and 49 per cent rattan, perhaps for its webbing, the chair would be considered and labelled as wood. Under 36/2011, if any article has even a strand of rattan, it is labelled rattan. There are many amusing stories recounted by respondents relating to ceramic vases from Bali with a strand of rattan embedded in the decoration or tied around the neck, and exported under the rattan HS code.

While this re-definition of rattan would help rattan exports seem higher, national export data does not show such a steep increase; only two per cent increase from 2012 over 2011 (UNcomtrade).[81] The Ministry of Trade touts data that resembles the Cirebon data to demonstrate the success of the ban (cf. Abdussalam September 11, 2012).

The sales spike reported in Cirebon District, even if accurate (and moderated for changes in definition), would signal an increasing concentration of rattan products from Cirebon. From 2009 to 2011, Cirebon was responsible for 46 per cent of all Indonesian rattan furniture production. In 2012, that figure rose to 58 per cent. This suggests that the share of production from smaller centres declined, signalling a higher concentration of benefits in Cirebon, where the factories tend to be larger. According to interviews with industry actors, this is possible to the extent that larger manufacturers have been better positioned to adapt not only to ETPIK, but also to the

80. Harmonised System: an international system of categorising imports and exports.

81. A reminder to the reader that I use UNcomtrade data from importing countries, which re-classify HS codes, thereby circumventing problematic redefinitions of classifications in Indonesia.

inspections and verifications mandated by Law 36/ 2011 in which SUCOFINDO inspects and assigns the HS codes to exported shipments. Since there is a greater proportion of larger companies in Cirebon (and Surabaya) compared with other areas, it is conceivable that smaller companies in smaller producing areas disappeared, but there is no reliable data available that could verify that hypothesis since reliable records on numbers and sizes of companies do not exist.

Trade data show that baskets have increased the most after the ban, increasing from USD 11.3 million to 35.7 million (BPS 2013), a 216 per cent increase. Basket manufacturing is one of the few rattan products that is not focussed in Cirebon, but is also produced and exported from Kalimantan. It could be that baskets have gained popularity in markets, or furniture is hardest hit in times of recession (cf. McCall 2011). A third explanation for the increase in baskets is that manufacturers integrate it more with other materials so it is over represented given the new definitions of rattan products since 2012.

While most of the attention of the Indonesian rattan furniture industry is on Java, the ban was accompanied by promise of developing the furniture industries in Sulawesi, Kalimantan and Sumatra. Leading up to the ban, the Ministry of Trade announced a Rp 20 trillion (USD 1.745 billion) programme to contract the production of furniture for public schools to rattan furniture producers in rattan producing regions (Silalahi December 27, 2011). The programme did not materialise. In Palu, Central Sulawesi, the government approached some manufacturers to prepare bids on these contracts, but they were given pricing limits that were unprofitable, according to Sulawesi manufacturers. Furniture manufacturers in rattan-producing areas are home-industry scale. The production is of a low quality and is sold locally. Although some contracts have been issued to Cirebon producers under this scheme, the budget for the full amount has not yet materialised.

Aside from the prospect of obtaining lucrative contracts with the government, furniture producers in rattan-producing islands have been generally insulated from policies affecting the international trade. They sell to very local markets that do not

compete with export-quality products. They cite difficulty to compete with quality and price of Javanese produced furniture. The cost of rattan cane in rattan-producing areas is 10 per cent higher than in Java.[82]

This shows that the ban failed to have the desired effect in boosting rattan furniture production in Indonesia, despite government and industry rhetoric of increases, and served to concentrate the benefits of rattan furniture further into the hands of the largest and most high-end factories. As a result, the ban, which was designed essentially to increase access to rattan for Indonesian furniture manufacturers and exclude international producers from benefiting from Indonesian rattan material, has not directly affected the ability of Indonesian furniture manufacturers to benefit from rattan.

At the time that I conducted interviews, just over a year had passed since the implementation of the ban. Industry insiders were mixed in their opinions on the ban, with rattan factory owners tending toward supporting the ban, and those closer to the rattan material supply side against it. ASMINDO, having members representing both camps, took a cautious approach while AMKRI was borne out of the perceived need of immediate action. By 2011, most rattan manufacturers with whom I spoke supported the ban, and only one factory owner interviewed was concerned that the ban could ultimately have a negative effect on global rattan furniture markets by reducing the availability of rattan furniture. While some said that the bans would have no effect and the problems are rooted in market access and design problems, others suggested that although there were no signs of change yet, the system needed time to correct itself, especially as Europe comes out of the recession. Figure 7-7 shows an additional year of data with no sign of positive change at a national level. The downward trend continued despite the ban and improvement in US and European economies. I explore the international markets in more detail in the next chapter.

82. According to interviews, rattan processors cite small volumes and increased selectivity in local markets for rattan.

7.5 Conclusion

Furniture manufacturers have a capital-intensive role in the rattan GPN and accept significant risk by equipping themselves to build furniture. Even though many of them have large factories, machinery, trucks and sometimes sizeable numbers of employees, they have very little control over their costs and sale prices. By focussing on the furniture production phases of production within the rattan GPN, several dimensions of access become clear.

Social relations (including trust) among actors remain important to market access, especially across geographically dispersed networks, but are not necessarily required. In these relations, trust, reputation and loyalty are prized assets among manufacturers and buyers alike, but actors are willing to engage in trades based on price, which is their top priority. Gereffi et al. (2005) suggest that trust is increasingly important for geographically dispersed networks, which in this study, means that actors are willing to continue trading with one another even when strains are put on prices. Yet, there are examples in this chapter that show trading despite a lack of trust. As Cook et al. (2005) suggest, certain institutional arrangements can replace trust among actors with trust in systems; a theory that is tested by looking at Indonesia's focus on the ETPIK and L/C systems. Actors make use of the networking facilities provided by industry association like AMKRI and ASMINDO, which have their own struggles for legitimacy among their stakeholders, and more importantly, the conveyance of benefits from market access to members.

Export markets push different companies in different directions in terms of shifts in the organisation of labour. On the one hand, because of the instability of markets, many companies have moved to an outsourcing model in which home industries are sub-contracted to fulfil orders. This reduces costs and the burdens of having a full-time workforce where orders are low. On the other hand, larger buyers have strict social and environmental standards that can be better monitored and met in a factory setting. The manufacturers moving to this model require stable contracts, which are afforded through larger buyers.

Elite capture is not as profound in Cirebon as among processors in Sulawesi, but nevertheless remains an issue raised by several manufacturers, especially pertaining to the favourable positions in which AMKRI and ASMINDO leaders find themselves and to the ways in which larger and high-end manufacturers have fared better over the implementation of ETPIK and regulations associated with the ban. I was limited in my ability to ascertain the precise levels of sales derived from manufacturers holding board positions in the industry associations, but it is clear that these leaders have more support to engage in international buyer networks through their position and that there are no clear mechanisms in place to distribute enquiries from international buyers to rank-and-file members. The number of factories, and the weaker relations with rattan cane distributors when compared to the relations between processor and wholesaler or processor and boss, result in less elite capture and a high importance of trust between individual factory and international buyer.

I showed that elite capture does not increase exponentially as rattan is upgraded, but depends on the nature of the GPN, as governed by mechanisms of access, at each phase of production. Manufacturers are the most capital-intensive actors in the GPN in Indonesia, and yet profit margins are significantly lower than among processors. This shows that although capital is an important mechanism of access, other market factors serve to constrain profit margins, especially moving further from the forest area. Although the theory that higher levels of capital leads to better ability to benefit from NTFPs (Belcher 2003) was true from forest to processor, manufacturers find themselves in a squeeze between continual downward pressure from buyers on price, upward pressure from rattan processors on costs, and increasing labour competition. All of these place rattan manufacturers in a difficult place to the extent that profit margins threaten the existence of many more manufacturers than already claimed.

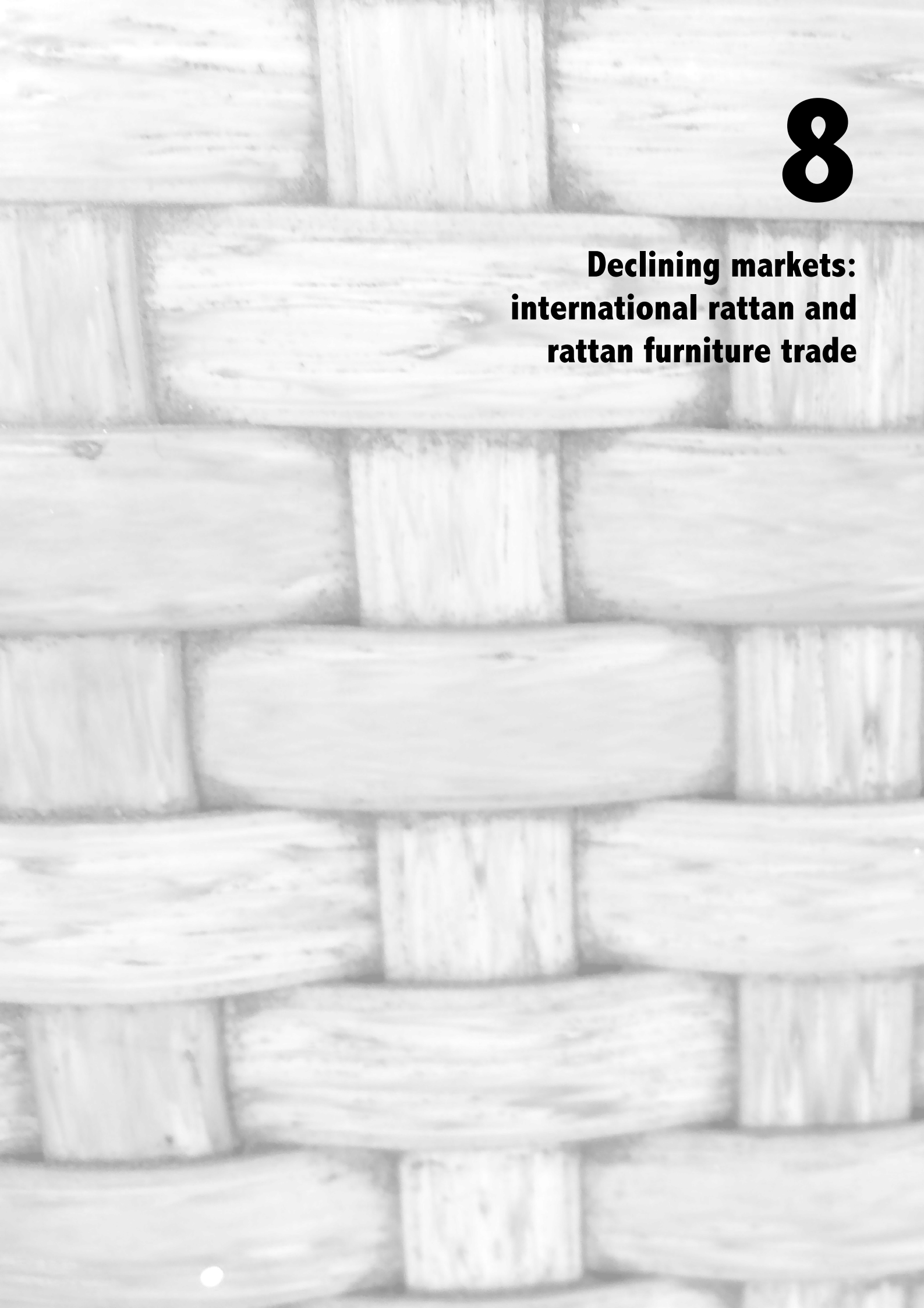
The 2011 ban had no impact on rattan furniture sales nor profit margins. Rather, Indonesian rattan sales have continued to fall at a rate greater than wood furniture and therefore an exploration into international markets will be the focus of Chapter 8. Although the ban has had little impact on sales, authoritative mechanisms of access, such as at ETPIK and SUCOFINDO inspections have served to prefer larger

and higher-end factories at the expense of smaller factories that have struggled to meet the rigorous requirements and costs associated with meeting regulatory requirements for export markets.

Regulations and standards, as well as developments of the industry associations, have served to prioritise the most elite factories. There is an overall sense among buyers and manufacturers that Indonesian rattan furniture can continue to compete both with other products and countries if it improves the overall design and diversity of its product offerings. There is a lack of innovation and design knowledge among Indonesian rattan factories overall, which limits the ability of industry actors to benefit from rattan.

Market competition is a growing concern, specifically with regards to synthetic rattan, which leaders of ASMINDO and AMKRI argue does not compete with natural rattan, but manufacturers and buyers argue the contrary. I showed that synthetic rattan products displace at least a portion of the natural rattan market share and have the potential to continually out compete natural rattan products in the market. The greater the ability of synthetic rattan to imitate natural rattan, the greater the threat it will be. According to a natural resource based view (Barney 1991; Hart 1995; Newbert 2008), the higher the imitability of natural rattan, the lower Indonesia's competitive advantage in furniture markets. As the squeeze on manufacturers continues, and the prices of alternative products serves to keep the retail prices low, as theorised by Homma et al. (1992), the market for natural rattan furniture is on the decline. In the next chapter, I explore international markets more.

This page is intentionally
left blank



8

Declining markets: international rattan and rattan furniture trade

Indonesian relationships with international actors vary significantly by role in the GPN. International buyers are a necessary part of the export-based business model and essential to keeping domestic rattan activities going. International and Indonesian manufacturers compete with one another. Indonesia attempted to increase its market share against international manufacturers through the implementation of the 2011 ban on un- and semi-processed rattan exports. I explore implications of access within international markets and among international actors.

As other studies on value chains and production networks have shown, more downstream actors in the production network cannot be equated to higher levels of control and power within the production network (cf. Sturgeon 2008). I have already shown that the processors of raw rattan cane are in a strong position to influence access of both upstream and downstream actors through the control of availability and price. Although manufacturers influenced trade policy, the policies failed to yield the expected benefits. International GPN actors were forced to react to these trade restrictions in order to access rattan and benefit from furniture to ensure the viability of their businesses. I analyse access implications of the 2011 ban primarily at an international level in this chapter to show how the shifts in markets reflect differential abilities to benefits from rattan.

The intent of the ban was to make rattan more available to Indonesian furniture manufacturers, reduce the cost, and cut off the supply of rattan to other countries. However, the ban shifted the benefits from legal to illegal actors, representing a redistribution of benefits to smugglers and their accomplices. Further, due in part to the cost increases associated with the increased expense of acquiring rattan that left Indonesia illegally, combined with the market disruptions that the ban influenced, buyers turned to alternative products and rattan products fell out of favour. This perpetuates what was shown in Chapter 5 to have impact on the forest and the choices that rattan collectors make in terms of earning a livelihood.

I use interview, survey, and trade data to understand more about how international actors access rattan cane and furniture. I focus this discussion around the Indonesian trade ban, which is the most significant barrier to access to rattan material for

international actors. While the ban succeeded in making rattan more difficult to obtain for international actors, the result was not as significant to international furniture producers as hoped by the Indonesian Ministry of Trade and Indonesian manufacturers. The ban has, however, reduced the ability of international actors to benefit from rattan in two primary ways: first, directly through increased prices, and second, indirectly through motivating buyers and retailers toward alternative products. In this chapter I explore both of these implications for access at the international scale.

I frame my arguments under two primary mechanisms of access. The first is authority, within which I focus the discussion on the impacts of the ban on access to rattan cane and furniture. I pay special attention to smuggling as an illustration of how distribution of benefits has shifted under the ban, even when overall sales of rattan furniture have not been affected by the ban. According to existing literature and experiences with trade bans, trade often continues on some level but is pushed underground (Peluso 1992b; Straw & Szwajkowski 1975).

Second, I focus on market access. I explore how the ban has affected buyer preferences toward alternatives products to natural rattan furniture. Akerlof (1970) suggested that too many low quality products in the market averages down consumer impressions and therefore devalues a product over all. In the case of rattan, the ban makes high-quality Indonesian rattan material difficult, or at least costly, to obtain by international manufacturers. Therefore international rattan manufacturers are sourcing a higher percentage of their rattan from lower-quality stocks. The ban thereby averages down the reputation of the rattan furniture as a whole and influences buyers to move to alternative products. In this case, such alternatives include synthetic rattan. After Homma et al. (1992), the movement of markets toward rattan alternatives has impacts on forests.

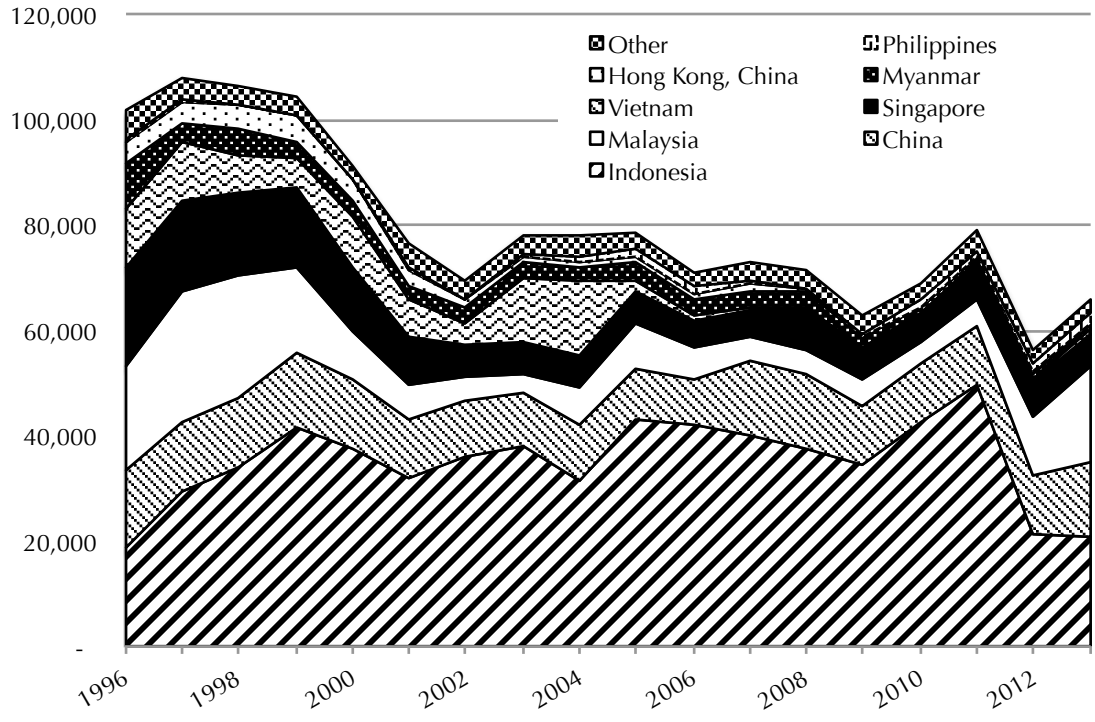
I apply these aspects of access by analysing first the international rattan material markets in Section 8.1 and then the international furniture markets in Section 8.2. I then explore the changes in the alternative products to natural rattan in the international furniture industry in Section 8.3.

8.1 The effect of the ban on international rattan material markets

In addition to ensuring supply of rattan to domestic actors, the strategy behind the ban was to effectively starve out Indonesia's competition in the rattan furniture trade. I look at this from two perspectives: first the rattan cane industry and second the rattan furniture industry. In both cases, I focus on trade data sourced from UNcomtrade.

Figure 8-1, below, was already shown in Chapter 4 to give a sense of the overall global rattan trade. Although there was a decline in total trade in 2009, the markets rose again in 2010 and 2011. After the export ban was put in place, registered imports sourced from Indonesia dropped considerably, taking the global markets down as well. As this section demonstrates, the markets increased in 2013 led by Malaysia and China, although I show that at least some of this rattan is sourced from Indonesia and further trades are made 'off the record', so to speak.

Figure 8-1: Rattan cane and plaits by exporting country 1996-2013 (2013USD '000)



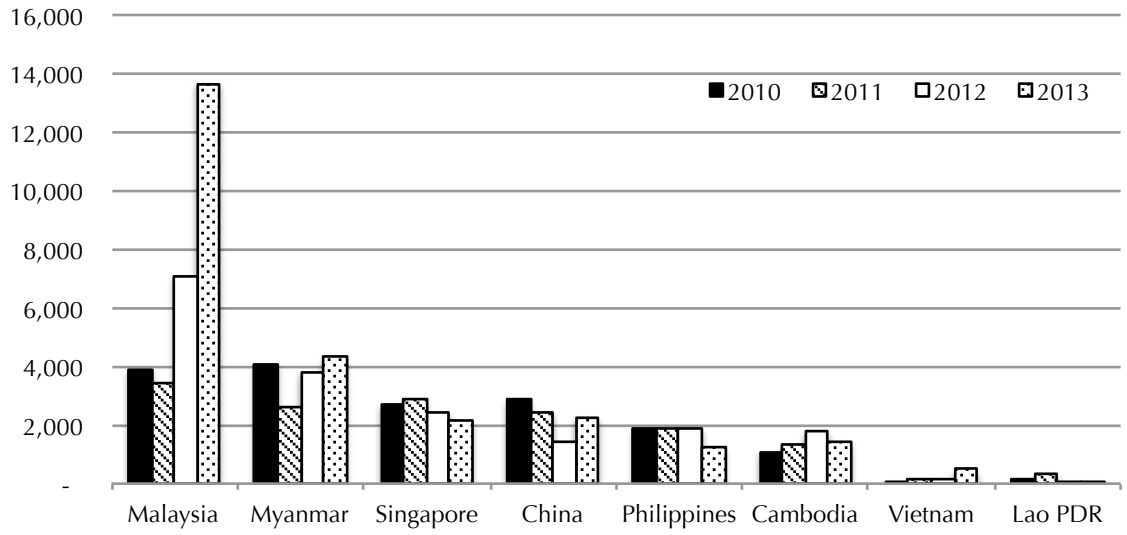
(data source: UNcomtrade)

There is little international trade sourced elsewhere that compensates for apparent declines in Indonesian production, and Indonesian rattan cane continues to dominate world imports, comprising 44 per cent of registered global imports. In

2012, all countries reported 14,785 tonnes of rattan material imported from Indonesia, compared to 39,005 tonnes in the previous year. Worldwide, 33,345 tonnes was reported imported from all countries in 2012, 39 per cent lower than 54,487 the year before and 40 per cent lower than 55,355 tonnes in 2010. The decreases in worldwide and Indonesian imports between 2011 and 2012 are 21,395 and 24,220 tonnes respectively, which marks a substantial decrease in trading volumes before and after the ban.

Other countries experienced shifts in trades due to Indonesia's ban and its dominant position in the overall marketplace. While long term data post-ban are not yet available, I focus on the two years preceding and following the ban from both export and import perspectives. Indonesia remains the major exporter of rattan, despite the ban. Figure 8-2 shows all of the countries that have been in the top ten exporters for any of the four years, except for Indonesia, which eclipses the other countries and was discussed in the previous chapter. The top five (including Indonesia) comprised 90 per cent of the market in 2013, the top seven comprised 97 per cent.

Figure 8-2: Top rattan cane exporting countries 2010-2013, excluding Indonesia (tonnes)

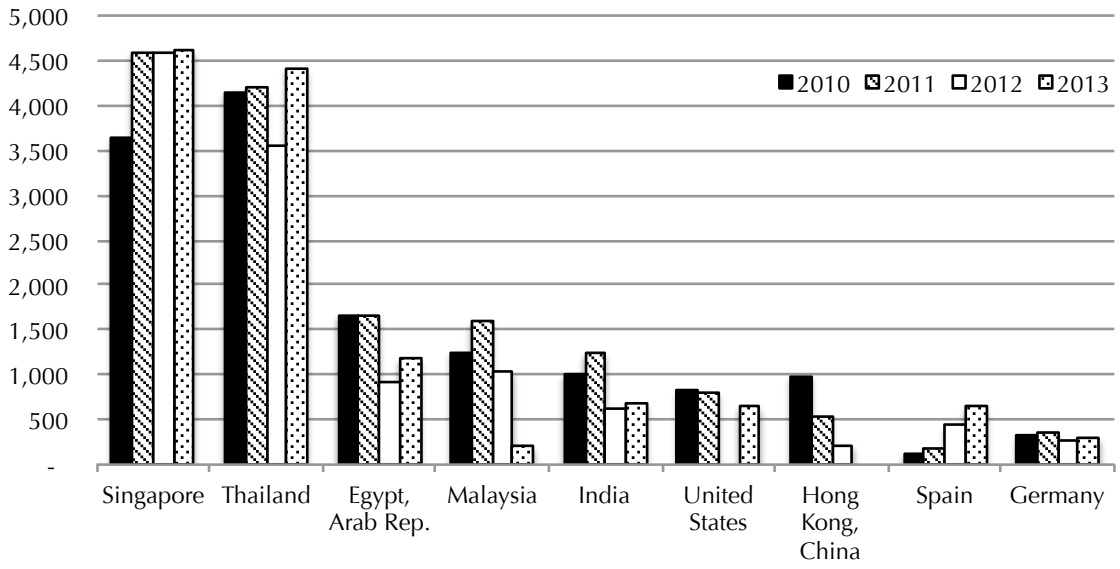


(data source: UNcomtrade) Note: Afghanistan reported 2426 tonnes imported from Pakistan in 2010. Otherwise, exports from Afghanistan have been minimal. The data is likely erroneous and therefore removed. Inclusion of Indonesian exports exceed the next highest exporter, Malaysia by 374 per cent over the period, rendering the other countries illegible in the figure.

The largest importer of rattan material globally has consistently been China. Chinese imports of rattan material are shown in Sub-section 8.1.2. Aside from China, Figure 8-3 shows all countries that registered imports among the top ten largest of each

year. While most countries realised a decline in the total amount of rattan imported, Singapore remained more or less consistent with the previous year, in which it increased from 2010. Other countries either decreased imports in 2011 and rebounded 2012 or continued to decrease. Spain registers an increase in rattan imports, as does the EU over all. Malaysia's official imports reduced substantially.

Figure 8-3: Top rattan cane importing countries 2010-2013, excluding China (tonnes)



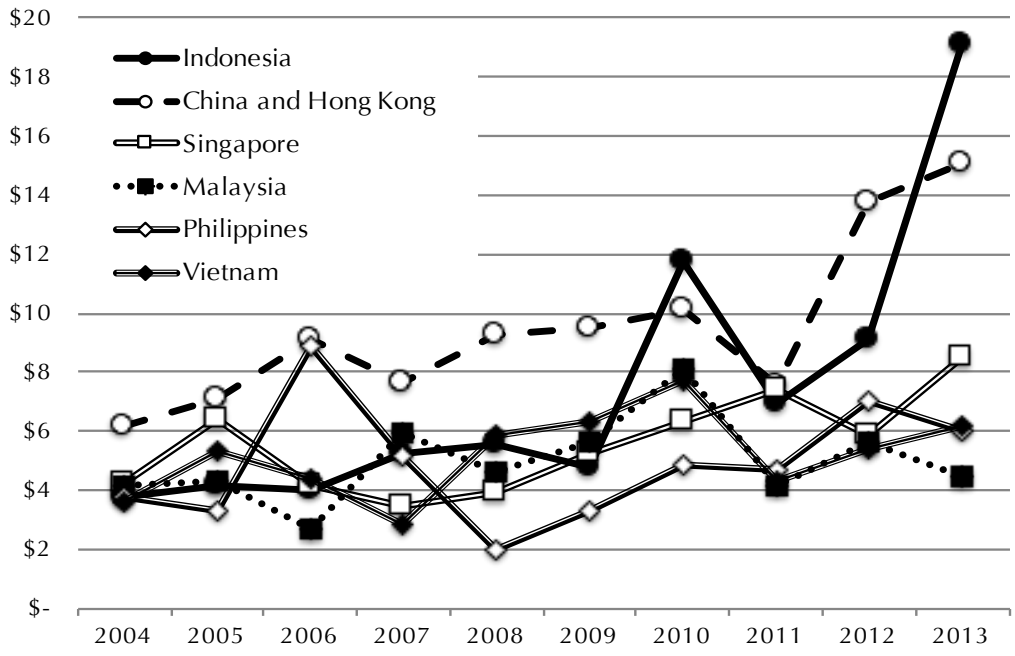
(data source: UNcomtrade) Note: similarly to Figure 8-2, the report by Pakistan of a large order in 2010 from Afghanistan is likely misleading and therefore removed.

As a result of the decline in rattan export volume and the transaction costs associated with obtaining rattan in the market, the price has increased, especially for Indonesian sourced rattan imported from Indonesia, Singapore, China and Hong Kong. Figure 8-4 shows the price of rattan reported by importers from Indonesia, China and Hong Kong, Singapore, Malaysia, Philippines and Vietnam. China and Hong Kong fetch the highest price, except for 2010 when the Indonesian export quota was enacted. The following year, China and Hong Kong imported large volumes of Indonesian rattan. Indonesian suppliers suggest buyers imported larger volumes to prepare for the upcoming ban. The increase was 15 per cent over the preceding year and a third higher than 2009. In 2012, the price of rattan shot up 82 per cent, while the Singapore-sourced rattan fell by 21 per cent. This can be explained by examining the trade flows. Immediately after the ban, Singapore diversified its sourcing of rattan away from Indonesia from 3163 tonnes in 2011 (69 per cent of imports) to 1502 tonnes in 2012 (33 per cent of imports), but maintained

total import levels within one per cent. By 2013, Singapore actors found their footing with Indonesian rattan again and the prices recovered. China, on the other hand, continued to source the majority of its rattan from Indonesia in the same year. While its imports from Indonesia decreased by 20,809 tonnes, its total imports from all countries decreased by 15,926 tonnes, meaning that it only replaced 4883 tonnes from other sources. The price of rattan sourced directly from Indonesia increased by 110 per cent in 2013 over 2012, and the prices of lower quality rattan from Vietnam and Malaysia decreased.

The precise distribution of such increases in price are unclear in this research. I discuss illicit trading later in this section. How much of the steep increases, especially from Indonesia and China, are captured by specific actors remains unknown. It was not possible in this study, for instance, to identify how much of this increase was captured by processors, transporters and so on.[83] Prices have clearly increased substantially after export from Indonesia became illegal, and international prices of Indonesian rattan are at a 10 year high.

Figure 8-4: Rattan cane import price 2004 to 2013 by source country (2013USD per kg)

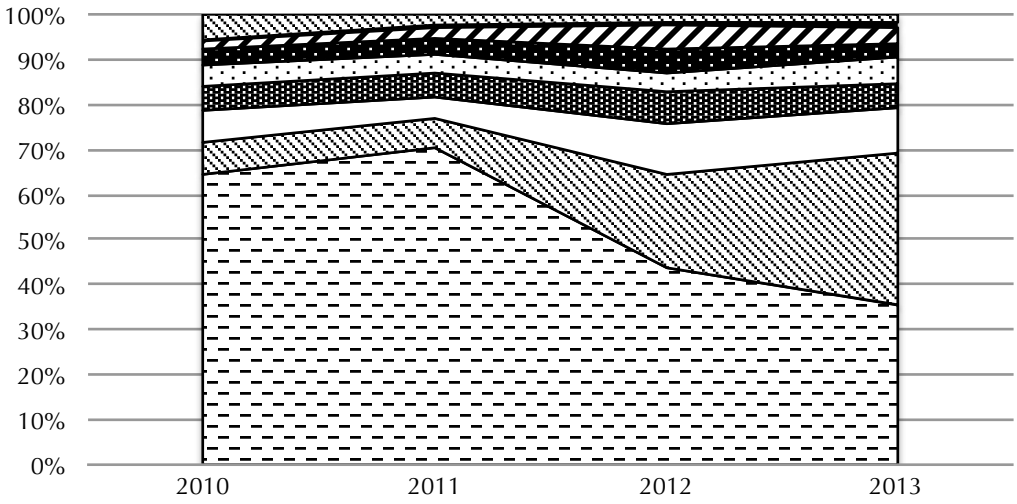


(source: UNcomtrade)

83. Fieldwork in Palu was completed before 2012 and 2013 data were available.

In terms of market share, the major changes since the ban have been Indonesia losing market share to Malaysia and to a lesser extent Myanmar as seen in Figure 8-5.

Figure 8-5: Market share of global rattan exports 2010-2013



	2010	2011	2012	2013
Other	6%	3%	2%	2%
Vietnam	0%	0%	0%	1%
Cambodia	2%	2%	5%	4%
Philippines	3%	3%	6%	3%
China	5%	4%	4%	6%
Singapore	5%	5%	7%	5%
Myanmar	7%	5%	11%	11%
Malaysia	7%	6%	21%	33%
Indonesia	65%	71%	44%	36%

(data source: UNcomtrade)

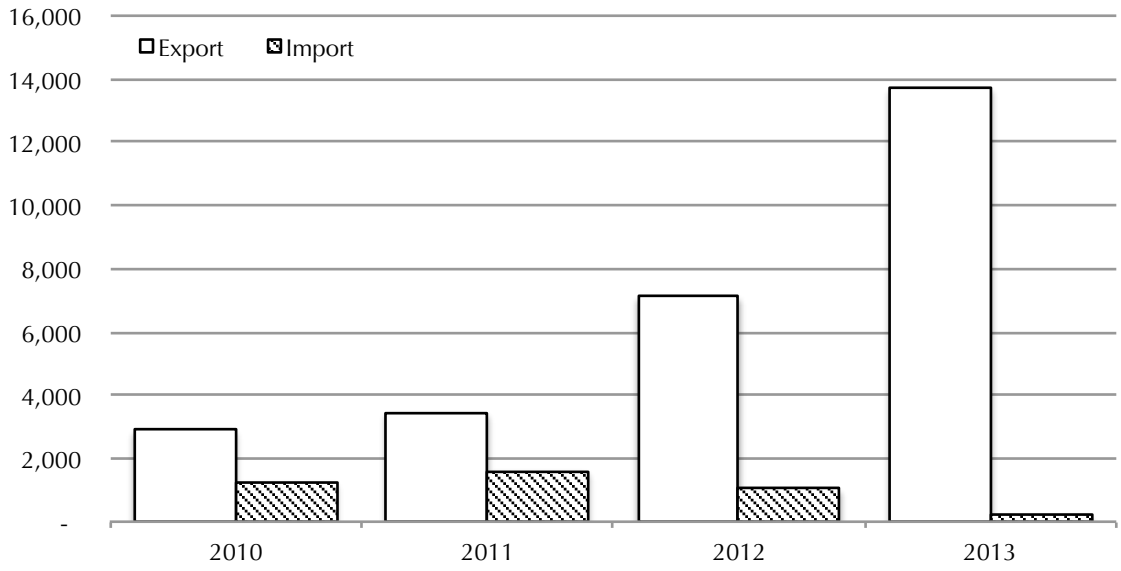
I now analyse some of the changes pre- and post-ban in key rattan trading countries, which gives an indication of how access changes at an international scale and how the abilities of actors within those countries are positioned to benefit from rattan.

8.1.1 Malaysia

In 2010 and 2011, Malaysia exported 7317 tonnes of rattan cane. Over the two years after the ban, that figure increased by 183 per cent to 20,731 tonnes. One explanation of this could be that Malaysian domestic production increased considerably. This is unlikely since Malaysian rattan inventories have been on continual decline for the past several decades, along with the Philippines and Thailand (Sastry 2001; Yi June 13, 2013). Another, more probable, explanation is that Malaysia imports more rattan than prior to the ban, although the trade data

shows otherwise. Figure 8-6 shows Malaysian imports and exports. While exports tend to increase, imports decrease. Because Malaysian rattan production is also decreasing, these data suggest a considerable amount of rattan entering Malaysia through unregistered means. This issue is explored in more detail in Sub-section 8.1.6.

Figure 8-6: Malaysian exports and imports of rattan 2010-2013 (tonnes)



(data source: UNcomtrade)

Malaysia's sourcing of rattan material is increasingly opaque. Exports are up and imports are down, and an increase in domestic production of that magnitude is unlikely.[84] Malaysia's dominant source of rattan cane in past years had been the Philippines, comprising 860 tonnes, or 83 per cent of all imports in 2012. Malaysian imports from Philippines have changed little over 2011 in which Malaysia imported 190 tonnes from Indonesia and 1365 tonnes from the Philippines, comprising 12 and 86 per cent of its total rattan cane imports respectively.

84. I was not able to source current data on domestic rattan production in Malaysia, but a number of factors led me to this assertion. First, Malaysian weavers import rattan, and have been struggling to deal with increased prices (Veno May 6, 2015; Yi June 13, 2013). Second, Malaysia had a significant cultivated rattan programme in the past (Sastry 2001). Given that cultivated rattan often competes with products such as oil palm and rubber, which have a higher value, there is likely to be conversion from rattan to oil palm as there had been in Indonesia (cf. Belcher et al. 2004) and Malaysian rubber and rattan plantations in swidden systems are being replaced by oil palm in Malaysia (Mertz et al. 2012).

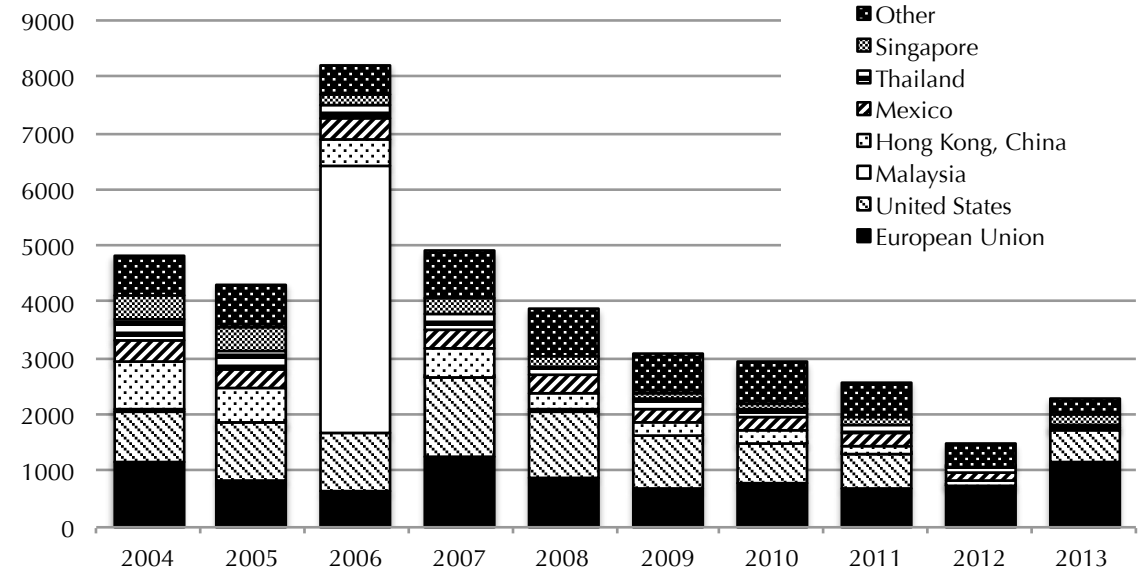
Malaysia reported 90 tonnes imported from Indonesia in 2012 and 111 tonnes in 2013, representing nine per cent and 56 of its imports respectively. In 2004, Malaysia sourced 96 per cent of its rattan cane from Indonesia. Leading up to trade restrictions, that ratio was down to 68 per cent by 2006. This explains why Malaysian rattan is generally at a cost-basis more similar to Vietnam and Philippines than Indonesia, China and Singapore, which rely on high-value species of Indonesian rattan to a higher degree. On average, Philippine and Vietnamese rattan cane traded 52 per cent and 45 per cent respectively less than Chinese trading prices and 30 and 19 per cent less than Indonesian rattan cane. Indonesian rattan moving to Malaysia is probably mostly *sega*, which has a lower price point than *manau* or *batang*, also reflected in the lower prices per kilogram compared with Indonesia.

Based on the trade data, Malaysia obtained rattan from unknown sources, presumably Indonesia and the Philippines, but the dramatic shifts in 2012 and 2013 suggest that its status as a trading hub of rattan increased after the Indonesian ban was put in place.

8.1.2 China and Hong Kong

Prior to the ban, over 87 per cent of Indonesian un- and semi-processed rattan exports were to China and Hong Kong. Of the 36,128 tonnes imported by China and Hong Kong in 2011, 92 per cent was used domestically. China steadily increased the ratio of imports to exports since 1996. Between 1996 and 1999, China exported between 74 and 89 per cent of all traded rattan cane. Even though China has also developed its own production of rattan, which increased during this period, it still fails to meet market demand (Li et al. 2007). Chinese exports of rattan cane decreased to 60 per cent of 2011 levels in 2012, but exports had been significantly decreasing since 2000. Exports from China peaked in 2006, at the time of Indonesia's implementation of export quotas, at which point China's domestic consumption rate rose from 57 to 76 per cent. As Figure 8-7 shows, China and Hong Kong's biggest export markets are the European Union and United States. While exports to the EU were not affected between 2011 and 2012, exports to the US were down, but rebounded in 2013.

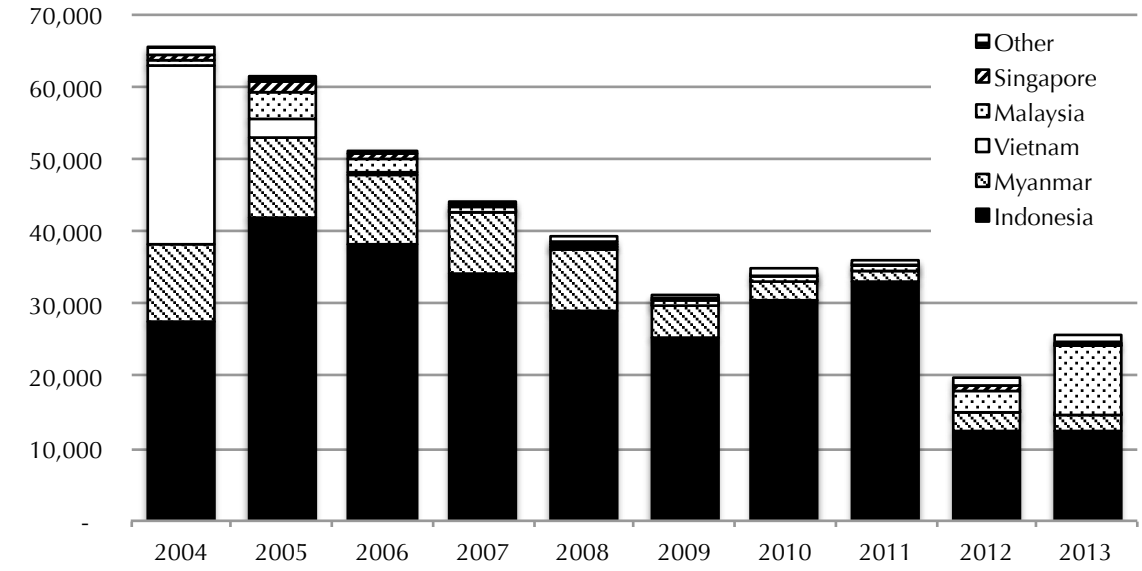
Figure 8-7: Exports of rattan material from China and Hong Kong by destination 2004-2013 (tonnes)



(data source: UNcomtrade)

Chinese and Hong Kong imports of rattan steadily decreased since 2003 from 76,450 tonnes down to 2012 levels of 19,882 tonnes, rising again in 2013 as shown in Figure 8-8. While Indonesia remains the biggest source of rattan material import to China and Hong Kong, Malaysia increased in importance as a trading partner after the Indonesia export ban and accounted for almost all growth in 2013.

Figure 8-8: Imports of rattan material to China and Hong Kong by source 2004-2013 (tonnes)



(data source: UNcomtrade)

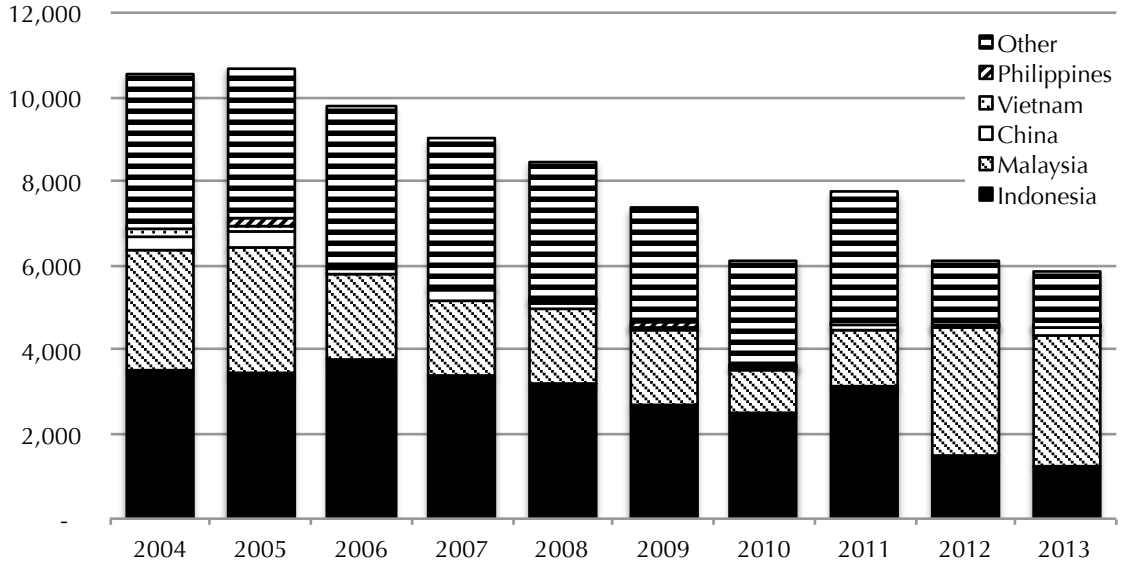
The only rise in import volume over this timeframe was in 2010 and 2011 when imports peaked at 36,128 tonnes. This increase (16 per cent over 2009) could explain what Indonesian rattan actors describe as Chinese stockpiling leading up to the ban. Ever since the 2009 trade restrictions and Java export ban of un- and semi-processed rattan, industry insiders knew that the full ban could materialise.

China remains a significant market for semi- and un-processed rattan from Indonesia despite the ban. Over 12,000 tones were imported in both 2012 and 2013. Although substantially less than the 33,000 tonnes imported to China from Indonesia in 2011, the amount is still significant, representing 62 per cent of all registered rattan material imports from Indonesia. In 2011, rattan reported by Indonesia as exported to China was roughly the same as that which China reported as imported from Indonesia, but none was reported post-ban.

8.1.3 Singapore

Singapore is not a rattan producing country, but a historical trader. Singapore sourced almost 70 per cent of its rattan cane from Indonesia and 27 per cent from Malaysia prior to the ban. In 2012, those numbers were almost reversed, with 65 per cent from Malaysia (68 per cent in 2013) and 33 per cent from Indonesia (27 per cent in 2013). Although the total amount of imports from both Malaysia and Indonesia remained stable from 2011 to 2012 and 2013 (as seen in Figure 8-9), official import records show the shipments coming from Malaysia after the ban, instead of from Indonesia. This analysis reinforces the suggestion that much of the Malaysian rattan is sourced from Indonesia. Philippines, Vietnam and China sourced rattan was already considerably much less than Malaysia and Indonesia, and has all but disappeared since the ban.

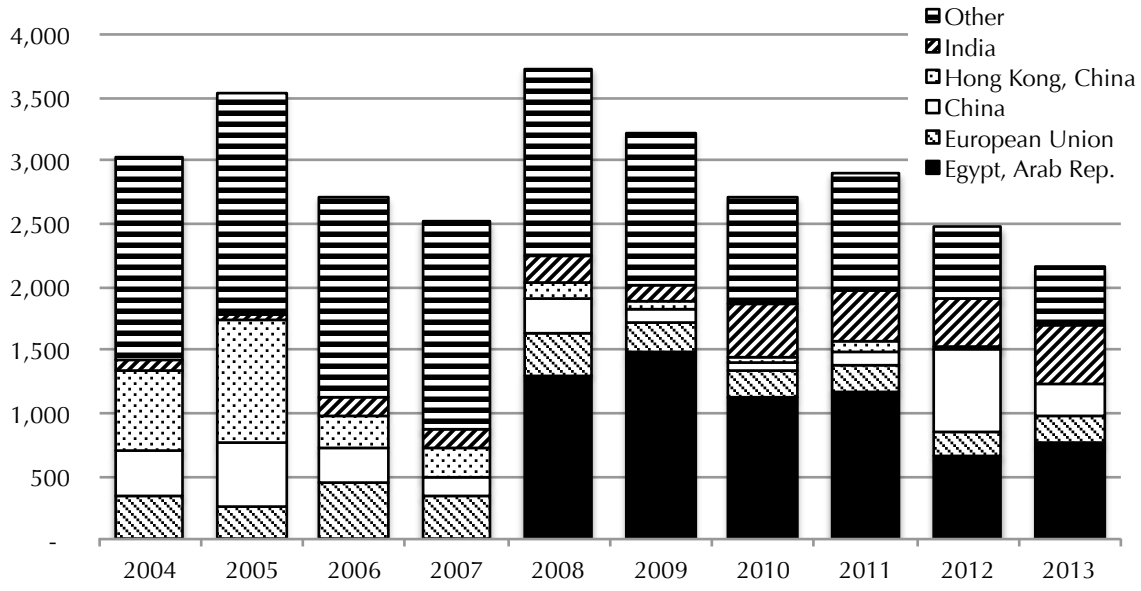
Figure 8-9: Imports of rattan material to Singapore by source 2004-2013 (tonnes)



(data source: UNcomtrade)

Singaporean exports to China spiked in 2012 but its overall exports decreased on reduced sales to Egypt (see Figure 8-10), likely relating to the political strife in that country. Hong Kong exports all but disappeared in 2012 and exports to India remained stable. The decrease in exports to China and Hong Kong in 2013 coincide with the increases in Malaysia, suggesting that Malaysia assumed more of the Chinese markets in that year, the reasons for which remain unclear within this study. Exports to other destinations decreased significantly after the ban, following the trend over the previous nine years.

Figure 8-10: Exports of rattan material from Singapore by destination 2004-2013 (tonnes)



(data source: UNcomtrade)

8.1.4 Other exporting countries

Other rattan source countries, have reacted to the ban, demonstrating its effects on access in other rattan-producing countries. Comparing the two years before and after the ban, Myanmar exports increased 21 percent, Cambodia 33 per cent and Vietnam 142 per cent. Exports from the Philippines dropped by 19 per cent. Other intermediary countries that exported negligible amounts of rattan before the ban, like East Timor, now show as among the top ten exporters although volumes are still low at 218 tonnes from 2012 to 2013. With its proximity to Indonesia, several industry insiders suggest that East Timor will become a hub for Indonesian rattan on the global market. Other isolated oddities appeared in 2012 and 2013 such as 22 tonnes being exported from New Zealand and variations in Vietnam that saw exports of 121 tonnes in 2010, 224 in 2011, and 176 tonnes in 2012. In 2013, exports increased two-fold to 570 tonnes, showing a 54 per cent increase the two years after the ban compared to the two years before. The country has no registered imports since the ban, and prior to the ban, its imports were almost two-thirds from Indonesia and the rest from China. These figures point to differential abilities to benefit from rattan related to the ban, but often primarily for traders, as I will show shortly.

8.1.5 Other importing countries

Imports to Thailand reduced by 15 per cent in 2012 compared with 2011, however imports increased again to exceed pre-ban levels in 2013. Indonesia is Thailand's third largest supplier of rattan material, with most of its inventory from Myanmar and Cambodia, both rattan-producing countries. In 2012, Thailand increased imports from Cambodia while Indonesian imports decreased from 928 to 234 tonnes compared to the previous year. By 2013, Thailand imported 378 tonnes of Indonesian rattan, which shows an increase, but for the most part, Thai importers have compensated for reduced access to Indonesian rattan by increasing supply from other rattan-producing countries.

The Philippines, a rattan producing and processing country, has all but ceased importation of rattan according to trade data. It has not reported imports from Indonesia since 2006 (when the quotas and tariffs were put in place in Indonesia) and significant imports from Singapore stopped in 2009. As the next section shows, the Philippines remains an active producer and exporter of rattan furniture. Given that rattan stocks are depleting quickly in the Philippines (Hirschberger 2011), it seems reasonable to wonder from where manufacturers' rattan material comes.

India is a historically strong importer of rattan material but its imports fell off sharply in 2012 from 1236 tonnes in 2011 to 612 in 2012 and 687 in 2013. Singapore remains its largest supplier, but by 2013 it reported negligible imports from Indonesia and 111 tonnes from Myanmar. Myanmar had been a negligible supplier prior to the Indonesian ban. Indonesian actors interviewed suggested that Myanmar will stand to benefit from the Indonesian ban by filling market gaps, which could be supported through these data.

These analyses show several imbalances in global rattan supply both among exporting and importing countries. Markets fluctuate significantly, especially since the Indonesian ban that took effect in 2012. Rattan is traded, but import and export figures are misaligned and substantial quantities of rattan cane remain reported as sourced from Indonesia traded on the global market. I suggest the ban has served to

push the trade of rattan underground. This analysis also suggests what others have assumed (cf. Hirschberger 2011), that much of the rattan exported from Malaysia and Singapore is sourced from Indonesia, in excess of what the trade data shows. I build on this quantitative analysis in the next sub-section with some qualitative analysis of the illicit trade of rattan.

8.1.6 Illicit rattan trade

I have shown that there is still considerable international trade in Indonesian rattan, and its price on the international market has skyrocketed since the ban was put in place. I now explore illicit rattan trade more deeply, looking specifically at some of the ways that rattan is smuggled out of Indonesia and enters into global trade flows. I do this through a qualitative analysis of interview data and media reports. Because of the nature of illicit trade, much of the data collected through interviews is from secondary, but informed sources, both in Indonesia and internationally. I am therefore cautious about suggesting the distribution of profit exacted by smugglers, customs agents and so on.

While exports of rattan material are illegal from Indonesia, there is no international agreement that prohibits the import of products that are banned from export by trading partners (Korinek & Jeonghoi 2011) unless the product is listed on a special list, such as the Conservation on International Trade in Endangered Species (CITES) or the Kimberley Process for the certification of diamonds to prevent the trade of conflict diamonds.

There is also no obligation on the part of rattan suppliers to verify the destination of a sale. As one Indonesian supplier stated, “we don’t ask where the rattan goes. If a buyer comes with cash, then we sell. We don’t ask any more questions than that.” Although processors may not ask more than that, well-connected and resourced intermediaries participate in transporting rattan material out of Indonesia. I remain uncertain of exactly who and how due to limitations of this study, but have some indications. One Asian importer of rattan material from Indonesia said, “I really want to tell you how I get it, but my wife won’t let me say.”

There are isolated incidents reported in the media of containers being confiscated by customs authorities (cf. Customs foils attempts, The Jakarta Post September 19, 2013; Davidson January 16, 2013; Fadi February 26, 2013), but looking at the trade data, this is hardly a significant proportion of the total illegal trade. The Government of Indonesia acknowledges that rattan cane smuggling occurs (Iskandar October 30, 2012), as does the Government of the Philippines where the export of raw rattan is also banned (Baquero June 28, 2013). The Furniture Industries Foundation in the Philippines attributes the stability or increase of its own post-ban rattan prices in that country to smuggling (Baquero June 28, 2013) and the same phenomenon has manifested in Indonesia. Comparable product bans have yielded similar results such as Cashmere in Mongolia (Arulpragasam et al. 2004) and first-class timber in Mozambique, resulting in 48 per cent of timber being smuggled out of the country (EIA 2013).

During the period of the 1986 ban on semi-finished cane, there were also reports of rattan smuggling (Peluso 1992a; Siebert 2012). Smuggling took the form of covert shipments, mislabelled containers, and loosely woven rattan that took the form of baskets that were unravelled upon reaching its destination (Whiting April 29, 1990). Other countries, such as Malaysia, Thailand and the Philippines also banned the export of rattan cane in past years, with indications of increases in cane smuggling (Sastry 2001). Smuggling is a symptom of greater tensions that arise when alterations to markets adversely affect specific actors (Peluso 1992a).

According to rattan processors interviewed, there are two types of actors engaged in rattan cane smuggling. Some are purported to be some of the same actors that were engaged in legal trade. They continue to conduct the same business that they did before the ban, but have additional costs and risks. These operators ship large volumes by container, falsify export papers and likely pay substantial bribes to customs officials and ocean police in Indonesia. Shipments continue to be made to similar destinations as pre-ban– mostly to China either directly or through Singapore.

The other is a group of actors who operate completely under the radar. These are the actors who trade smaller volumes through unregistered ships, often disguised as fishing boats. Their fees are to small commodity-based ports and likely to officials in the destination countries. Since their vessels cannot travel great distances, the buyers of this rattan are reputed to be from Singapore, the Philippines and Malaysia. Image 8-1 shows a shipment of rattan being loaded into a fishing boat.

Image 8-1: Rattan being shipped by unregistered vessel, Central Sulawesi

Photo taken by anonymous source. Used with permission.

As the trade deficit to Malaysia shows, significant volumes of rattan material arrived in Malaysia not registered as imported rattan. Industry insiders in Sulawesi suggest that most smuggling occurs from Kalimantan. They say that trade routes by truck to Kucing, Entikong, and Bau make *TSI*[85] easy to move, however there is evidence of boats departing from Sulawesi and Sumatra also as shown in the above figure and recounted in interviews. Malaysia, Singapore and the Philippines are just hours away by boat.

Furniture manufacturers in Indonesia with the size and resources make direct trips to rattan sourcing islands like Sumatra, where high quality *manau* rattan is sourced. A factory owner recounts travelling to Sumatra but still struggling to obtain the rattan.

85. A species of rattan sourced primarily from Kalimantan and used for basket-making

"I can see the rattan there. It is all there, piled up. But no one wants to sell it to me" says one factory owner, suggesting that more lucrative arrangements are being made elsewhere. Manufacturers explain that continued, but now illegal, export of rattan is responsible for maintaining high domestic prices.

As I observed in China, some rattan was received wet after the ban, meaning it has not gone through the multi-day process of drying and is therefore double the weight of dry or cured rattan. This also suggests that some rattan cane is bypassing the processors in Indonesia. Image 8-2 shows the processing of a new shipment of Kalimantan *fitrit* drying after having been recently shaved and Central Sulawesi polished *batang* in China in August of 2013, 20 months after the ban was put in place.

Image 8-2: New Indonesian Fitrit and Batang in Huang Qi

Source: Author

According to processors, international sales of rattan before the ban yielded a 100 to 200 percent mark-up compared to domestic prices, which have remained steady at approximately USD 1.30 per/kg. Sales to international buyers from Indonesia were somewhere near USD 4/kg in 2011. As shown in the previous section, Indonesian rattan fetched just over USD 19/kg in international markets in 2013. The price

difference accounts for transportation costs, export taxes, and the rent extracted by illicit traders and associated authorities, such as the custom agents and so on. Due to limitations of this study, any further breakdown of who is extracting how much rent from these transactions is not possible. However, as the next section shows, international furniture retail prices have remained stable, and therefore, the market benefits from rattan furniture have shifted, in part, to those involved in the illicit trade.

Both registered and unregistered trades of rattan become important in the next section that discusses rattan furniture trade. The rattan furniture industry is highly dependent on the raw material trade and an analysis of these markets sheds additional light on the trading discussed so far.

8.2 The effect of the ban on international rattan product markets

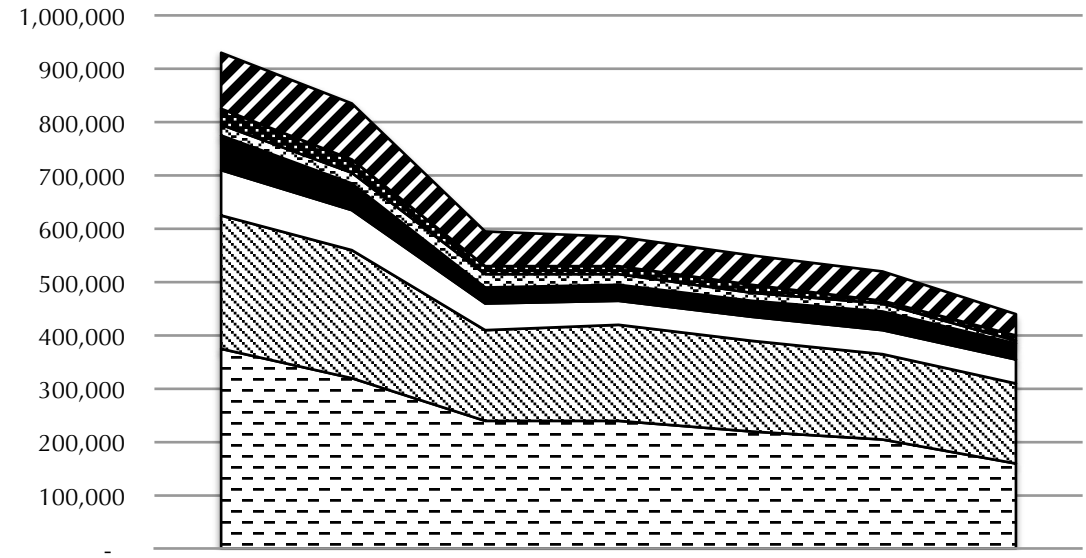
This section focusses on international rattan furniture trade. Export markets drive the ability to benefit from rattan across the GPN. The ban had a serious impact on rattan product manufacturers in other countries. They were forced to source from other rattan-producing countries like Myanmar, Vietnam, Cambodia and Philippines, modify designs to include less Indonesian rattan, and purchase more costly rattan material. In China, producers responded to increased costs by changing designs to use more wood or and less rattan.

Global import data show a steady decrease in rattan finished product trade since 2007, with the biggest drop of 28 per cent in 2009, the year of the US and European financial crises. World trade decreased by four per cent between 2011 to 2012 and dropped five per cent from 2010 to 2011. Remembering that imports from Indonesia shrunk 16 per cent as shown in Chapter 7, the ban had the opposite than was intended in terms of attracting sales away from competitors.

Indonesia's attempt to become a stronger player in international markets has not been successful and China has increased its market share of the furniture market after the ban. Import data for furniture sourced from the major exporting countries of China, Indonesia and the Philippines, shown in Figure 8-11, demonstrate that there were decreases in rattan and bamboo furniture exports in 2008 and 2009, coinciding

with the Europe and US financial crises, and that Philippine, Vietnamese and Chinese exports have remained relatively stable since then, while imports from Indonesia have continued to drop, even after the ban.

Figure 8-11: World imports of rattan and bamboo furniture and baskets by source 2007-1013 (2013 USD '000)



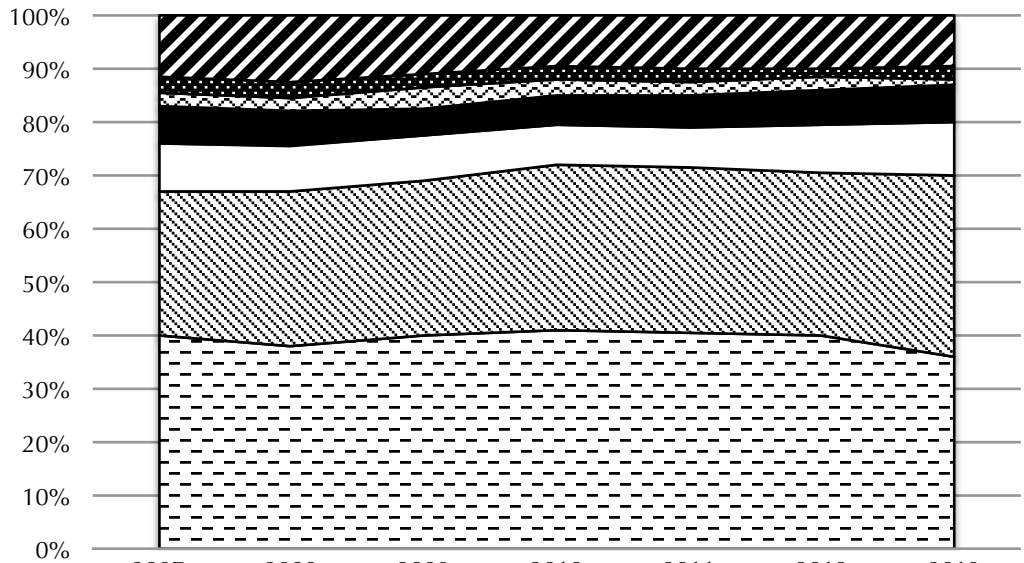
	2007	2008	2009	2010	2011	2012	2013
Other	109,125	105,631	66,963	54,478	55,388	51,044	42,411
Italy	27,849	24,569	13,764	14,296	13,932	9,448	9,523
Germany	21,540	19,539	23,660	18,725	12,371	12,722	5,301
Philippines	63,469	54,387	29,437	31,568	32,611	33,417	30,130
Vietnam	87,314	73,523	50,147	44,380	42,771	46,081	44,187
China	250,815	239,592	173,320	181,252	170,213	159,277	150,804
Indonesia	372,223	319,422	237,906	239,256	220,654	206,129	157,745

(data source: UNcomtrade)

Overall, Indonesia's market share decreased while China's gained (see Figure 8-12). The year before the ban, in 2011, 40 per cent of world imports were sourced from Indonesia and 31 per cent from China. By 2013, Indonesia's market share had slid to 36 per cent and China's increased to 34 per cent. Vietnam's market share increased from eight per cent to 10 percent since the ban. Buyers suggest that Indonesia is a difficult place to do business and that Chinese production tends to be of higher quality at a better price. Indonesian manufacturers also recognise China's price advantage despite the increases in the costs of raw materials. One buyer in the UK

with experience buying from both Indonesian and Chinese manufacturers suggests the labour is much more efficient in China and they can produce more products in less time than Indonesia, with lower labour costs.

Figure 8-12: World import of rattan and bamboo furniture and baskets by source market share



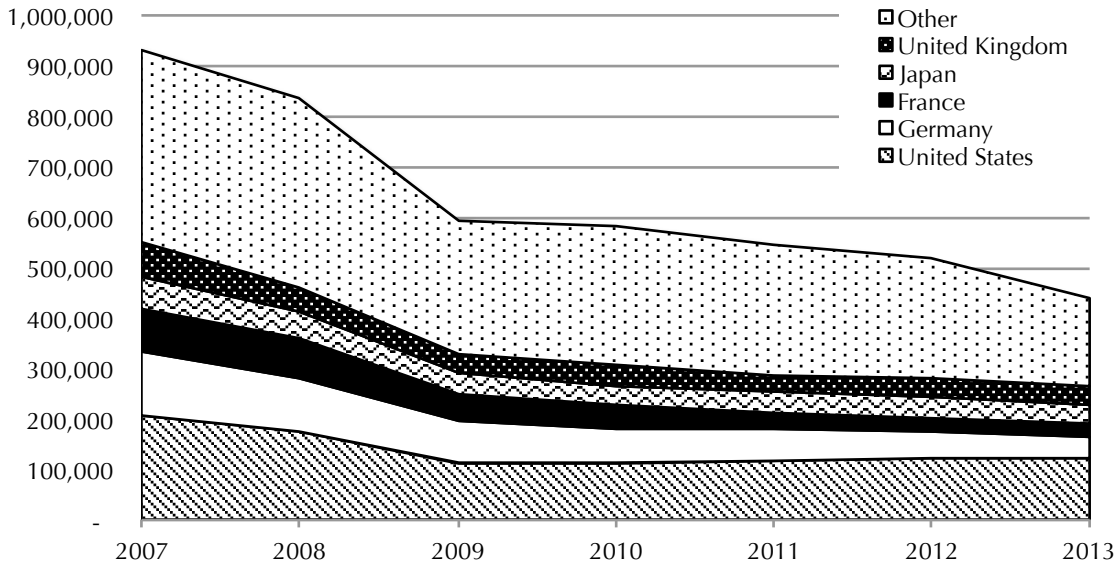
	2007	2008	2009	2010	2011	2012	2013
Other	12%	13%	11%	9%	10%	10%	10%
Italy	3%	3%	2%	2%	3%	2%	2%
Germany	2%	2%	4%	3%	2%	2%	1%
Philippines	7%	7%	5%	5%	6%	6%	7%
Vietnam	9%	9%	8%	8%	8%	9%	10%
China	27%	29%	29%	31%	31%	31%	34%
Indonesia	40%	38%	40%	41%	40%	40%	36%

(data source: UNcomtrade)

Imports have also remained stable since the ban and throughout the US/EU financial crisis, with the exception of the largest importer, the European Union, which has experienced a declining market for rattan and bamboo furniture since 2007. Figure 8-13 shows the top importers by country. In 2011, the EU comprised 33 per cent of global imports. By 2013, it was nearly unchanged at 32 per cent. During the same period, the United States increased by five per cent to 24 per cent of the market and Japan increased two per cent to become eight per cent. The US and EU markets have both decreased since before the financial crises, with the EU down 60 per cent in 2013 from 2007 and the US down 41 per cent over the same period. China, the third largest market, has only fallen seven percent of this time frame. In Section 8.3 I

discuss the extent to which the overall downward trend represented in Figure 8-13 is because of global financial environments, or related to trends in the furniture markets.

Figure 8-13: World imports of rattan and bamboo furniture and baskets by destination 2007-2013 (2013 USD '000)



(data source: UNcomtrade)

Retailers purchasing from Indonesia experienced price increases, some as high as 75 per cent within the past year and double from 2011 to 2013, according to interviews with importer/retailers in the UK. Their suppliers blamed increased costs of rattan as a reason, even though domestic prices had only increased with inflation by that time.

In the next sub-sections, I analyse some specific countries of interest in the rattan furniture markets to better understand the extent to which the Indonesian ban affected their ability to benefit from rattan. I start with China, the world's second biggest rattan and bamboo furniture exporter behind Indonesia.

8.2.1 Chinese manufacturing

Indonesian rattan processors and finished product manufacturers alike mentioned China most frequently. Although China is a major rattan furniture manufacturer, most of its production is focussed on its large domestic market. Huang Qi is the main rattan furniture centre in China. Manufacturers I interviewed in Huang Qi estimated that 80 to 90 per cent of their sales were domestic. The country's success in the market was driven by low-cost production, industry clustering, government subsidies, foreign direct investment, ease of access to overseas markets and strong domestic markets (Cao & Hansen 2006). Chinese manufacturers estimate of 85 per cent of rattan furniture production is sold to the domestic market. USD 165 million of rattan and bamboo products were exported in 2013. This means that about USD 1.1 billion was produced in total.[86] This is a conservative estimate since Huang Qi factories were clear that the domestic market not only has lower costs, but the sale prices per unit are also higher than exports.

Manufacturers in Huang Qi have similar style factories to those in Indonesia, and operate at a similar scale. One would scarcely be able to recognise the difference except that the models of furniture are quite different because of the focus on the domestic market. In 2013, overall Chinese furniture exports comprised a third of global markets. It is reasonable that during the European and US financial crises, exports would have shrunk compared with production for Chinese domestic markets, especially as China's policy response included stimuli to support domestic production and markets (OECD 2010). The EU (38 per cent in 2013) and US (31 per cent in 2013) are China and Hong Kong's largest importers. The US market declined 45 per cent between 2007 and 2013 and the EU market has fallen by 38 per cent. Overall, China and Hong Kong exports of rattan and bamboo furniture was down 40 per cent over the period, dropping substantially in 2009 and falling about five per cent per year since 2010.

86. Consistent with a USD 1 billion estimate by a researcher with China's Tropical Forestry Research Institute (cf. Rongsheng 2015).

In response to the difficulty in accessing raw materials, and the two-fold price increases of rattan sourced from the Philippines, Vietnam, Myanmar and Cambodia, Chinese manufacturers have engaged two main strategies. First, they turned their focus increasingly to domestic markets. Second, they increased other material usage; mostly wood, and water hyacinth, but also some plastics and metal (see Image 8-3). In several factories, structural components that once used Indonesian rattan, are now made of wood. Although mixed material furniture has long been a tradition in Huang Qi, its popularity has increased with the price increase of rattan in 2012. None of the 100 factories in Nanhai and Foshan have converted their operations to synthetic rattan according to local sources.

Image 8-3: New styles of chairs in China with more wood and less rattan

Source: Author

Several of the Chinese factory owners reported that the smaller factories have already closed due to the increased material prices, but for most mid and larger sized factories, it is business as usual but with a tighter profit margin and more creative designs. According to interviews with Chinese manufacturers, closed factories were unable to project pricing effectively. When the price increased in early 2012, they purchased without considering the decreased profit margin and the unwillingness of buyers to increase product prices. They abandoned factories and left their debtors, the material suppliers, to liquidate the partially-finished furniture and eke out whatever they could to repay the debts.

Clearly, the price increases have put China, and the rest of the world, at a price disadvantage, but the supply remains available both from Indonesia and other countries. Material suppliers and furniture factories were better stocked than their Indonesian counterparts, with more varieties, and more specific sizes and availability of processed material components (see Image 8-4 in which the hanging *fitrit* are organised by specific size to the millimetre to meet buyer specifications). Manufacturers suggested that even though they are using lower quality materials to supplement Indonesian material, consumer preference in China has not been affected.

Image 8-4: Huang Qi factory with wide range of rattan component specifications available

Source: Author

As importers of rattan furniture, China and Hong Kong have steadily increased their imports since 2009, however imports from Indonesia decreased 18 per cent in 2012 over 2011 while overall imports remained nearly unchanged.

8.2.2 Other international furniture manufacturers

The Philippines is another example of relatively little change due to the ban in terms of overall furniture production. Its exports of rattan and bamboo furniture remained increased from 2013 USD 33.5 million to 35.2 million from 2011 to 2012. Prior to the implementation of the ban, the Philippines had experienced a near halving of its rattan furniture exports in 2009 at the onset of the US financial crisis, its major market. After 2009, its export markets have remained stable, representing a long-term loss in market resulting in job losses throughout the sector.

Overall rattan and bamboo furniture markets have been trending down, but there does not appear to be a direct impact of Indonesia's ban on exports of raw materials on furniture sales outside of the general trend of decline. Further, Indonesia, which

ostensibly has increased access to rattan after the ban, has seen a bigger drop in exports than most countries and has lost market share to China and Vietnam, the next biggest producers. Indonesia's ban had the opposite of the intended effect for access to the benefits of rattan. The ability of manufacturers in China and Vietnam to benefit from rattan furniture increased while Indonesia's ability to benefit decreased. The reason that the ban was put in place in the first place was to address an already declining rattan furniture export market and it proved ineffective at reversing that trend.

There is also the possibility that rattan markets have decreased but bamboo markets have increased and that Vietnam and China are bigger bamboo producers than Indonesia.[87] Trade data shows that the types of furniture produced may be important. Furniture has fared considerably worse since 2007 compared with baskets and mats, which have declined by 40 and 48 per cent respectively compared with a 63 per cent decrease for general furniture and 61 per cent decrease for seats.

Rattan baskets make up almost half of Vietnam and the Philippines' rattan finished product exports (compared with 25 for Indonesia and 33 for China), and sales of baskets increased by 11 and five per cent respectively following the ban. Myanmar similarly increased basket imports, which comprise 83 per cent of its exports, by 10 per cent in 2012 over 2011. This analysis shows that even though rattan and bamboo are mixed in one reporting code for most furniture products, the world trend has been for decreased trades of all categories of rattan products. However, some countries are positioned to benefit more than others, depending on what types of rattan finished products they produce.

8.2.3 International furniture retailers

Just as manufacturers are squeezed between buyers and rattan processors, buyers are squeezed by consumer price tolerances and tendencies toward more affordable and longer lasting products. Furniture consumers are particularly prone to compare prices and products (Lihra & Graf 2007), which puts continual pressures on retailers

87. Remembering that the Harmonised System codes for rattan and bamboo furniture are shared for some products.

to meet demands. According to interviews, internet marketing is an effective way to reduce prices and increase profits, but brick-and-mortar stores have trouble changing their business model to do this. Internet-based stores offer considerably lower price points to consumers and achieve increased margins, according to an internet retailer in the UK. They can buy a chair for £24 and sell it for £200 with less overhead than conventional retailers.

IKEA and Pier 1, both major furniture importers and retailers, have reputations among Indonesian manufacturers as being particularly price sensitive and having very specific requirements. According to industry insiders (including IKEA and Pier 1 suppliers) in Cirebon, while these companies operate on lean margins, their volume is such that they can make large contracts and still turn a profit, but this requires sophisticated manufacturing techniques on a large scale, involving significant capital and specialised knowledge.

Smaller retailers are not so fortunate. One retailer interviewed in the UK, whose company has been in the rattan furniture business for over 30 years, claimed that while costs continue to rise, consumer expectations are for lower price points. They said that while they used to import 10 containers of rattan furniture a month, now they import less than one every three months. While they have tried to move more to internet sales, they have not had much success and find that the overall market is low. They purchase a brand-name sofa frame for £300 and retail it for £500, which barely covers their costs, but they sell the cushions for £200 which nets a tidy profit. Smaller retailers are challenged to derive benefits from rattan markets, which suggests that effect of the downward trend of markets especially challenges the ability of smaller retailers to benefit from rattan.

The global rattan furniture markets have not experienced any jarring effects from the Indonesian ban on the exports of raw material. Indonesia, more than other countries, has experienced a diminishing market for their goods. As shown in Chapter 7, there has been a gradual and continual reduction in Indonesian exports of rattan furniture that has accelerated after the ban. To address the question of whether the declines in

markets are a matter of overall slumps in consumption in furniture, or something about rattan furniture markets themselves, I briefly analyse alternative product markets.

8.3 Changes in rattan furniture alternatives in the market before and after the ban

Korinek and Kim (2011) showed that export restrictions on raw materials create uncertainty in markets, and signal increased risk for downstream actors, resulting in decreasing overall markets. International rattan furniture actors are motivated to move to alternative products that are more easily obtained, at a better price point, and have redeeming qualities that give a competitive advantage over natural rattan products. There are several alternatives to natural rattan in the market, depending on the intended use of the finished product and preferences of the market. Other natural fibres such as water hyacinth and banana leaf are currently trending according to manufacturers and buyers. Another is the Lloyd's Loom material, which includes a wire wrapped in paper and then finished. Synthetic rattan remains a strong competitor, especially for outdoor and commercial applications as already discussed in Chapter 4. These products are not tracked individually and are therefore difficult to trace at an international level using trade data, although I will present some qualitative data here from interviews to elucidate issues pertaining to synthetic rattan products. Wood furniture comprises the majority of globally traded furniture, representing 67 per cent of all furniture trades in 2013.

Through trade data, the wood furniture market presents an interesting point of comparison. I will present this analysis first, and then incorporate qualitative data on all alternatives to natural rattan.

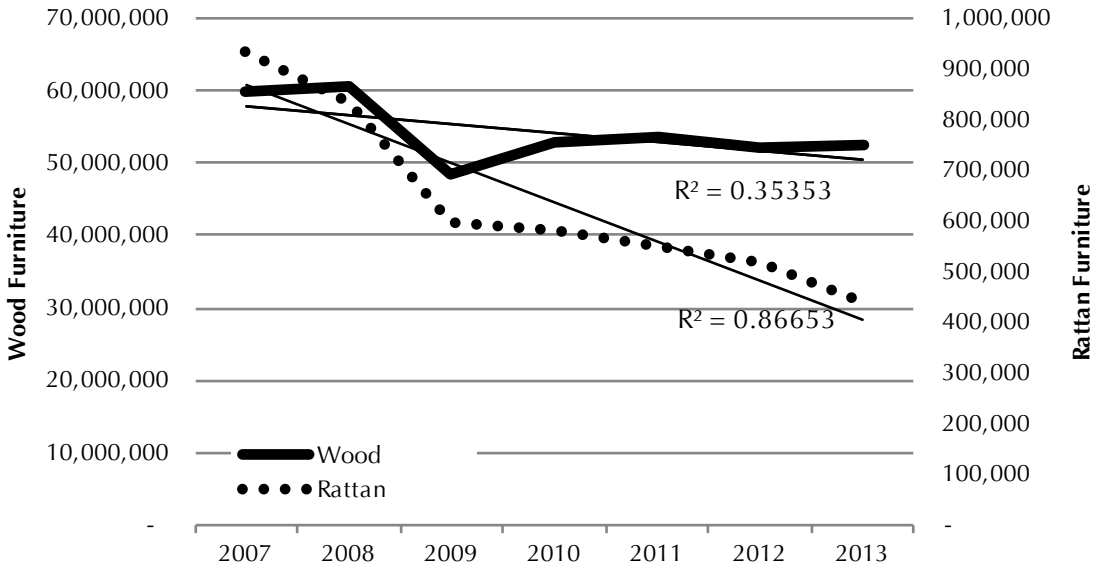
8.3.1 Wood as an alternative to rattan

Chapter 7 showed that buyers were generally less optimistic than sellers about most rattan and rattan-competing products with the exceptions of certified wood products and other natural fibres, which were rated in the online survey as the most promising product within the next five years by buyers and of little significance or of declining importance to sellers.

Here, I show that the decline of rattan markets is more than simply an effect of the US/EU financial crisis by analysing wood furniture markets briefly. Overall, rattan furniture imports from Indonesia dropped by seven per cent from 2011 to 2012 whilst wood furniture markets dropped one per cent. In 2013, wood furniture imports from Indonesia increased 11 per cent while rattan fell off 23 percent. Indonesian market share in finished rattan products decreased two per cent after the ban.

Looking at global wood and rattan (and bamboo) markets over the past seven years (when sufficient data is available), the decline of rattan and bamboo compared to wood is shown clearly in Figure 8-14.

Figure 8-14: World rattan & bamboo and wood furniture markets compared 2007-2013 (2013USD '000)



(Wood = HS 940161, 940169, 940330, 940340, 940350, 940360 in data source: UNcomtrade)

The figure shows that both markets have declined over the period, falling off sharply at the beginning of the US/EU financial crisis in 2009. After that, wood furniture imports rebounded while rattan and bamboo markets continued to fall. Since furniture is a long-term purchase, it seems reasonable that consumers might delay purchasing during uncertain economic times. But rattan and bamboo are declining more rapidly than wood, especially in Indonesia. In 2013, the Indonesian government credited improved wood markets to the implementation of new

certification for legally harvested wood exported to the European market (Timber certification pays off for Indonesia with 114% increase in sales to EU, Jakarta Globe June 4, 2013), suggesting that market preferences are responsible for the increases.

8.3.2 Non-wood furniture as an alternative to rattan

Although non-wood alternatives to rattan vary widely, they have an important commonality: none of them rely on a natural resource controlled by a single country, and certainly not by Indonesia. The major alternatives fall into two categories: natural and manufactured materials. Natural alternatives involve water hyacinth, banana leaf, bamboo and an array of other natural fibres that are usually quick-growing plant species. These furniture products are grouped together in the HS and show moderate growth since 2007, when they were first reported under their own HS code and no significant changes from 2011 to 2013.

Manufactured materials include primarily synthetic rattan and Lloyd's Loom products. Synthetic rattan is the largest market of these materials for Indonesia. There are no HS trade codes for synthetic rattan, which are labelled as plastic furniture more generally, making it difficult to understand sales through trade data.

In Indonesia, moves by manufacturers to synthetic rattan furniture tend to be from those with experience with natural rattan products, according to interviews. As several manufacturers mentioned, they have been pushed into synthetic rattan in response to buyer demands for the products. Interviews in the UK with importers and retailers revealed that synthetic rattan is clearly the growth market. As one online retailer commented, "the [natural] rattan market is totally flat, but synthetic rattan markets are exploding". A South African trader published the following text in their 'About us' section, revealing the difficulty in accessing rattan cane and the ways that distributors encourage transition to other synthetic and natural materials:

> Africa Trading has been importing cane/rattan raw materials from the East into South Africa for the past 20 years. And, therefore have vast experience in the supply routes of all these materials.
>
> We are specialists in the supply of cane raw materials for the cane furniture and basket making industries in South Africa .

> Due to the shortage that we are all currently experiencing with the supplies of cane/ rattan raw materials, we have included in our range of products, a new product called "Flexicane" which is actually a synthetic cane replacement. Please peruse our website and have a good look at this range.
>
> We have also introduced a vast range of grasses which are being used in the weaving industry today. These grasses come from all over the world and have also proved to be an excellent substitute for natural cane weaving materials. In this new range - are willow raw materials which is proving a great substitute for natural cane during this international shortage.

(Africa Trading n.d.)

I asked online survey respondents to what they attribute the steeper decline in rattan furniture markets compared with wood furniture markets. The responses, shown in Table 8-1, are illuminating for understanding what factors influence these markets and lead to difficulties in benefiting from rattan.

Table 8-1: The global sales of natural rattan furniture have gone down more than wood furniture sales over the past several years. How would you explain this?

Item	Total Score	Overall Rank
Advances in synthetic rattan furniture attract customers away from natural rattan	168	1
Consumers are looking for more durable or longer lasting furniture	137	2
Natural rattan furniture is becoming too expensive	134	3
Natural rattan furniture is harder to source than wood furniture	126	4
Wood is in fashion	97	5
The quality of natural rattan furniture has gone down whilst wood has not	79	6
Natural rattan furniture is out of fashion	74	7
Customers prefer to buy products that are certified as sustainable	70	8
Other	36	9

Source: Online survey 2 (n=39)

The most attributed reason for the decreasing rattan markets compared to wood is that synthetic rattan is attracting customers away from natural rattan. One of synthetic rattan's main selling points is its increased durability, which is the second explanation provided by respondents. As explained in previous chapters, advancements in synthetic rattan related to knowledge and technology mechanisms of access to serve markets, from which synthetic rattan actors benefit. The third and fourth reasons pertain to the increased costs and decreasing availability of natural

rattan. This also supports the synthetic rattan thesis, because its price is less influenced by trade policies (there are no specific taxes, tariffs or restrictions on synthetic rattan materials) and the supply is able to keep pace with demand.

While several rattan furniture dealers interviewed moved from Indonesian-sourced natural rattan to Indonesian-sourced synthetic rattan, Indonesia has no material advantage in the synthetic rattan market as it does with natural rattan. Major producers of synthetic rattan furniture are in China, where much of the webbing material is made.

8.4 Conclusion

At an international level, rattan markets are on the decline. As the world's leading rattan furniture manufacturing nation, Indonesia's strategy to address the decline was to use its authority to impose the ban on the export of un- and semi-processed rattan so that the country would have more control over the raw materials, and more importantly, stifle competitors in an already troubled market. In access terms, Indonesia used its control over access to enhance the ability of Indonesian furniture manufacturers to benefit from rattan markets. This chapter shows that the ban was moderately successful in decreasing the ability of international actors to benefit from rattan. Benefits to Indonesia were compromised by increases in costs and risks, although some of these costs simply replaced export tariffs that Indonesia previously had in place on rattan exports.[88] Indonesian rattan material remains available in international markets. However, other countries have increased production as well, which has the effect of averaging down the global quality of rattan furniture.

These data are incomplete without a more detailed picture of how much rattan is illegally traded without any registration into national trade data. The ban was effective in pushing the trade of rattan underground as shown by trade discrepancies and unregistered trade. This shifts the latent benefits of rattan from the government of

88. Chapter 4 describes the history of rattan export tariffs in Indonesia. The tariffs were dropped in 2011 because no rattan is legally exported. See Figure 4-6 on page 106 for more details.

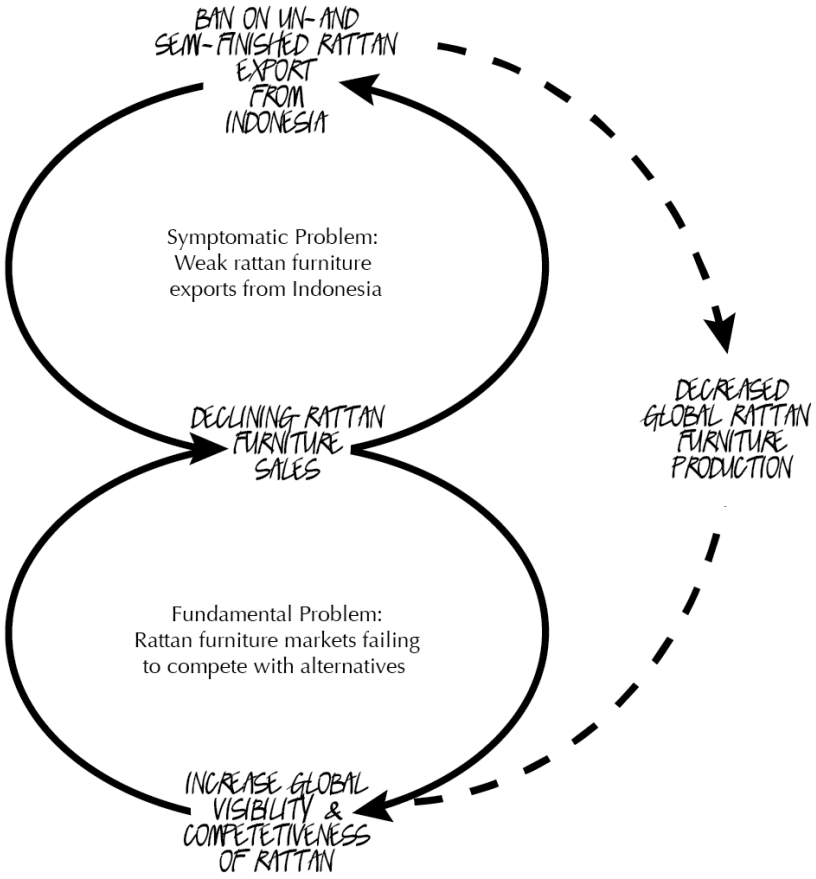
Indonesia, which used to collect export tariffs, to illicit traders, and at the same time overall prices have increased in both international and, to a lesser extent, Indonesian markets.

Global furniture markets were little affected by the ban in terms of overall sales. The downward trend of the rattan furniture markets started before the ban was put into place and continues on a slow and steady decline after 2009. The 2009 US/EU financial crisis had an impact on all furniture trades, to be sure, but it is only part of the reason for falling markets. This could simply mean that rattan furniture is going out of fashion, but industry actors suggest that rattan has fared worse than wood furniture primarily because of challenges related to increasing costs and preferences for other materials that have specific advantages over rattan. The direct effect of this is an increase in costs to furniture manufacturers and retailers, which challenges profit margins for the companies within the dynamic of price pressures from consumers. In this way, the Indonesian ban on the export of rattan materials has served to support the market declines by creating incentives for international manufacturers to source other materials, thereby shifting market trends and preferences. Ultimately, Indonesian exports have performed worse than those from other countries resulting in a loss of market share primarily to China and Vietnam. Therefore, not only has the ability to benefit from rattan decreased for international manufacturers by increased material costs, but manufacturers in all countries experienced a shift from rattan to other products and an overall commensurate decrease in the ability to benefit through market mechanisms.

Considering that Chapters 5 and 6 showed that the ban increased hardships in rattan-producing regions of Indonesia and Chapter 7 showed that benefits to the furniture factories have so far been only to a select few, I conclude here that international markets have also continued to decline. Figure 8-15 shows that the 'problem' that precipitated the ban was the declining rattan furniture sales. The solution imposed by the Indonesian government was to initiate the ban. However, this was a solution to a symptomatic problem of weak rattan exports from Indonesia. The GPN analysis shows that the more fundamental problem relates to the failure of rattan furniture to compete with alternatives in the market, with the high costs of

obtaining good quality Indonesian rattan material a contributing factor. A solution to the fundamental problem would likely involve strengthening the visibility and competitiveness of rattan in international markets. Arguably, the more available rattan furniture is in all countries, the more recognition it would have in the market, which would yield benefits to all actors globally. By addressing, the symptomatic problem rather than the fundamental one, the Indonesian government created a global disincentive to participate in rattan furniture markets internationally (both by reducing availability and increasing prices), which serves to perpetuate the decline in the markets and counters a fundamental solution of increasing global competitiveness of rattan furniture in the markets.

Figure 8-15: Rattan market problem cycle: fundamental solution of increasing market visibility limited by decreased global production as a result of the ban



Modelled after 'shifting the burden' in Senge (1990)

Homma et al. (1992) and Hart (1995) suggest that alternative markets to NTFPs will ultimately harm the forests by reducing the value of NTFPs. As I show, alternative products are so far affecting the finished product market for rattan furniture,

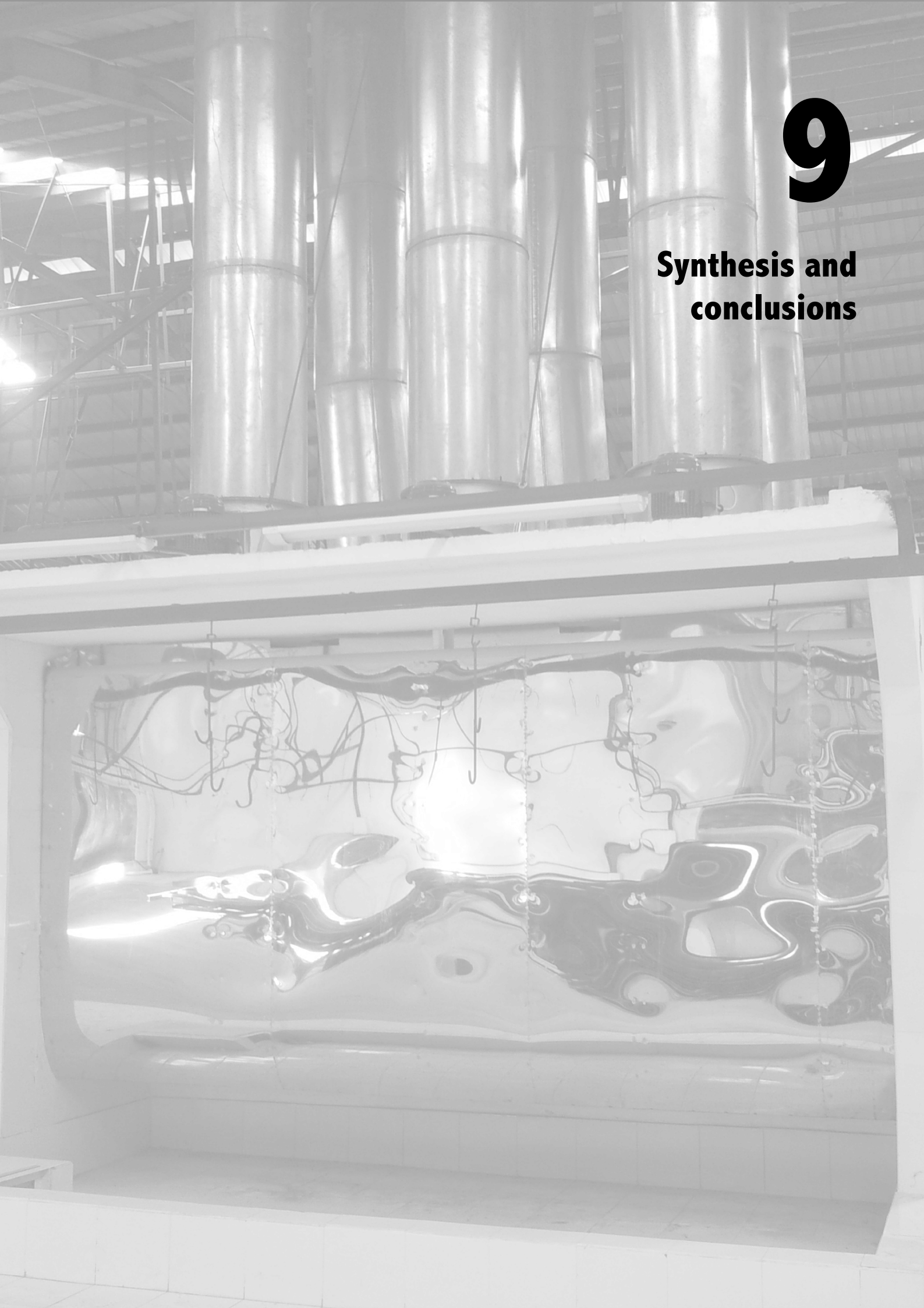
ultimately altering the value proposition that rattan furniture offers compared with competing products that promise greater longevity and durability if not a lower sale price. But the extent to which the prices of rattan furniture can adjust to meet market preferences reshaped by alternative products depends greatly on the price of rattan. These prices have so far been stabilised by processors despite reduced demand. Even in a shrinking market, the processors have been able to control prices by using their strategic position in the network, as discussed in Chapter 6. Alternative materials have therefore not only affected the cost of rattan, but also the demand for it.

Ultimately, no matter how strong the social relations are among market traders internationally, if there is no market, the relationships are sure to dissipate. As buyers have emphasised, the first priority in selecting products and suppliers is price (including value), and the prices of natural rattan are severely tested against competing products. As global prices of natural rattan furniture increase compared against competing products, especially synthetic rattan and wood products, sales decrease. Ultimately, the global markets for rattan have a diluted proportion of Indonesian (highest quality) rattan in the market, which, following Akerlof (1970), results in a lower quality of rattan in the market overall. This has only served to support market declines over time resulting in a net reduced ability to benefit from rattan.

In the concluding chapter of this study, I tie these declines in market to the issues of the "moving forests" that were discussed in Chapter 5 and discuss how international market trends affect forest users and forests.

This page is intentionally
left blank

UEA
University of East Anglia

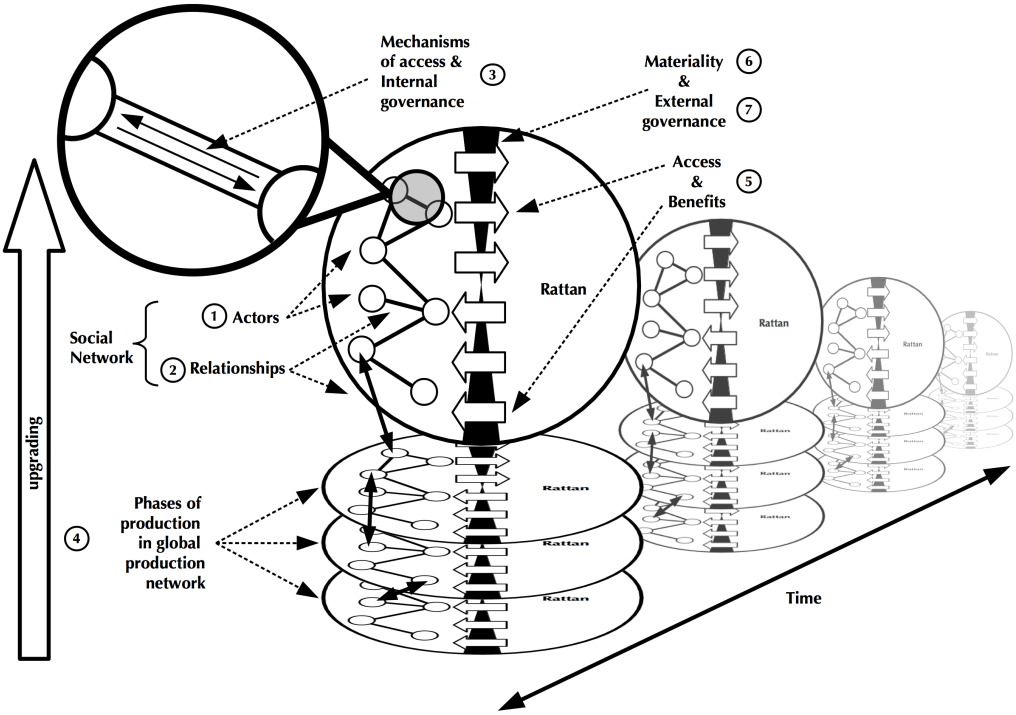


9

Synthesis and conclusions

I set out to understand how GPN actors successfully and unsuccessfully benefit from rattan originating in and near Lore Lindu National Park, Indonesia. This central line of questioning was motivated by my interest beyond the distribution of profits within value chains, and to understand how power relations affect actors and, as I learned throughout this study, the nature of the production network itself. Using concepts of access and GPNs, I examined power relations among GPN actors and the ways different actors benefited from rattan. I identified the main types of actors involved in the rattan global production network, examined relationships among actors, analysed how different actors leverage and negotiate mechanisms to gain, maintain and control access to rattan, and what types of benefits actors derive from the rattan GPN. I examined the role of the materiality of rattan in facilitating or restricting actor access to rattan as well as the role that government policy plays in affecting trade at different phases of production. Figure 9-1 reminds you of my conceptual framework.

Figure 9-1: Conceptual framework diagram



Chapters 5 to 8 showed that power dynamics between processors and collectors, processors and manufacturers, and manufacturers and buyers have enabled larger and high-end actors to benefit marginally and other actors to have decreased market access to rattan, motivating furniture actors to shift to alternative products and forest-based actors to prefer cacao at the expense of the forest. Fundamentally, this analysis points to power dynamics among actors that directly result in redistribution of benefits within the GPN in the favour of illicit traders, large factories and some rattan processors; and indirectly in the decline of global markets, reducing the demand for rattan and thereby failing to arrest land use shifting from forest-based to agricultural.

In this final chapter, I synthesise findings from the empirical chapters to elucidate my main empirical findings and contributions to knowledge in Section 9.1. I present some theoretical reflections on these findings in Section 9.2, policy implications in Section 9.3 and areas for further research in Section 9.4. Finally, in Section 9.5 I make some final conclusions.

9.1 Main empirical findings

Chapters 5 to 8 highlighted several empirical findings pertaining to specific phases of productions within the GPN. Here, I synthesise empirical findings among the chapters. I identify four main empirical findings, all of which relate to the changing power dynamics among actors within the rattan GPN. They are as follows:

1. Indonesian furniture manufacturers' attempt to increase their ability to benefit from rattan contributed to the continued decline of global rattan markets
2. Actors use other mechanisms of access to support access to export markets
3. The trade ban benefited a narrow range of actors at the expense of most other actors
4. Materiality has an influence on the context in which mechanisms of access are implemented

The following sub-sections show each of the four findings in turn. The first finding pertains to GPN governance overall and the effect of access on other phases of production, which is exemplified through GPN changes after the ban was implemented. This finding shows that the effects of the ban were antithetical to the

rhetoric of the ban as a method of protecting and strengthening the Indonesian rattan industry and that not only were actors in other phases of production adversely affected by the ban, but so too were the Indonesian manufacturers themselves.

My next three findings are explanatory of the first finding. My second finding suggests how mechanisms of access are applied in relation to one another. I suggest that most actors implement mechanisms of access in order to gain access to export markets, which is the primary way actors benefit from rattan. I understand mechanisms of access applied in a nested structure, in which one serves to facilitate another. The logics of actor behaviours in influencing power dynamics becomes more clear when they are understood in this way. I show the relationships among mechanisms of access to be important to realising benefits at different points in the GPN.

The third finding shows how the ban on the export of semi- and un-processed rattan benefited only a specific set of furniture manufacturers and those involved in the illicit trade of rattan materials. Although actors discussed this as a potential effect leading up to the ban– voiced most strongly by those in the rattan material trade– elite capture manifested in several unexpected ways. Several processors collapsed, leaving just a few that remained active in Palu. Although the fact that the remaining processors are strongly integrated with domestic wholesalers may not be surprising, even some otherwise large processors also closed– primarily because they did not have the domestic infrastructure or linkages in place due to a prior focus on international markets alone. Further, the remaining processors were, and still are, vehemently against the ban. Business has still suffered under the ban even for the remaining processors.

Many furniture manufacturers who initially supported the ban based on promises by the Ministry of Trade and AMKRI that it would build up the Indonesian industry have failed to experience such benefits. Therefore, while the ban was enacted with the understanding that manufacturers would have better market access, this has only materialised to a marginal extent with the largest and most up-scale manufacturers.

Fourth, the materiality of rattan shapes access at all phases of production in terms of durability and therefore ability to compete with alternative products, shipping costs and constraints, raw cane costs, and collection from the forest. I focus mostly on the biogeophysical aspects of rattan in the forest and how the nature of rattan influences who has authority to collect rattan, the costs of collection, and specifically how the processes involved in extracting rattan compare to other activities– especially cacao. This analysis injects the concept of materiality into discussions of access and shows that mechanisms of access are implemented within contexts that are shaped by the materiality of the *thing* being traded. I now examine each of these findings in more detail.

9.1.1 Attempts at increasing benefit at one phase of production affected the entire global production network

Phases of production fit together through linkages among actors within the GPN. Where actors within the same phase of production are often in competition with one another, actors at different phases depend on one another to upgrade or source rattan. Chapters 5 to 8 analyse phases of production at raw material, furniture and international trade phases within the GPN. Here, I focus on the linkages among these phases to provide a holistic analysis answering the question 'how is access to rattan at one phase of the GPN connected to access at another phase?' This synthesis is especially important because I addressed the research questions in each empirical chapter according the phase of production but not yet as a whole. I explain the distinction between direct and indirect effects of access by actors at one phase of production on another.

The most obvious effect of access among phases of production is that with an excludable resource, like rattan, where one actor or group of actors benefits, another is necessarily excluded (cf. Hall et al. 2011). Exclusion happens among actors and among phases of production and is part of how access is negotiated. In Chapter 7, I described direct effects of access as 'the squeeze' in which processors position themselves to maintain control over prices of raw materials and furniture buyers control final furniture prices as a function of competition with alternative products, including wood furniture, synthetic rattan, and others. As each actor strives to

maximise their benefit, manufacturers and collectors find themselves with little control over prices, except for highly specialised manufacturers, whose products cannot easily be imitated due to specialised design or manufacturing processes. This inimitability results in the ability to retain a competitive advantage (Barney 1991; Newbert 2008) whereas the majority of rattan manufacturers are losing markets.

The 2012 ban on the export of un- and semi-processed rattan serves as an interesting case to understand access among levels of production. Rattan processors in Sulawesi and other islands resisted the ban because the majority of their sales were in the export markets. When rattan material was exported legally, this had at least three major implications on Indonesian furniture manufacturers: 1) rattan was difficult to source, 2) the prices were perceived as high, and 3) competitors in other countries were using Indonesian rattan to outcompete with Indonesian manufacturers using high quality Indonesian rattan. The ability of Indonesian furniture manufacturers to benefit from rattan was directly affected by the processor's access to export markets. At the same time, ostensibly because of international competition, manufacturers claimed that they could not benefit from Indonesian rattan citing excessive competition.

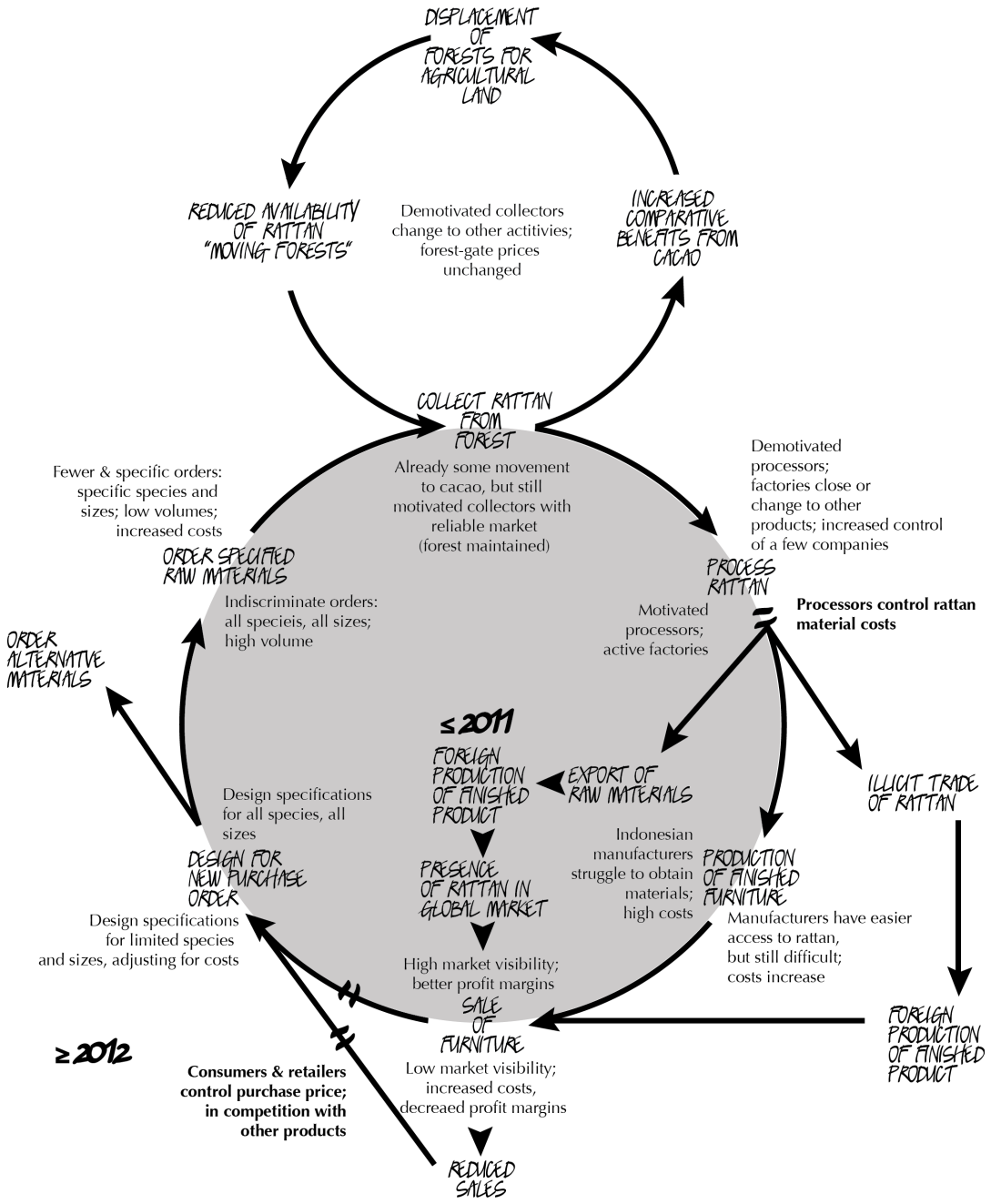
The explicit objectives of the ban were to exclude international rattan furniture manufacturers from the benefits of rattan. There was also an overt awareness among government officials and proponents of the ban, that the ban would result in decreased sales of rattan material, at least in the short term, which serves to exclude processors from enjoying the same levels of benefits as they did before the ban in the hopes that manufactures would increasingly be able to benefit from rattan. This was a politically-calculated risk resulting in the closure of most processors in Palu, with only the most powerful[89] remaining. Prior to that, the 2009 ban on exports from Java had a similar, although even more devastating effect on rattan processors in Java.

89. In this case, the most powerful means that the social relations and market linkages were strong enough that the processors could remain viable even though international markets became a more complicated source of benefit.

These are direct effects of access in which actors at one phase of production experience increased ability to benefit from rattan, and actors at other phases experience decreased access. But there are also several indirect effects of access that do not result in the direct exclusion or diminished access of other actors or other levels of production. Rather, indirect access effects result in changes to the overall rattan GPN, which in turn could have positive or negative effects on different actors in different phases of production. In this study, the effects are proven to be negative, but in others, they could be positive.

Figure 9-2 below shows phases of production both before (grey) and after (white) the ban. The figure shows a cycle and an additional bi-product loop at the top. Changes at any phase of production impact the entire cycle. As previous chapters have shown, the international rattan market is on the decline, and therefore with each iteration, the indirect effects of access on the rattan GPN result in reduced abilities for all actors to benefit from rattan.

Figure 9-2: Effects of the ban on relations within the rattan GPN



International furniture buyers perceive that quality rattan furniture at acceptable price thresholds is increasingly difficult to source. At the same time, market preferences for alternative products are on the rise. Indonesian rattan manufacturers strive to increase their ability to benefit from rattan, with the ban as their flagship strategy. Yet, they effectively reduced the access of international furniture manufacturers to rattan– not by cutting off supply, but by increasing prices because

of the costs associated with illicit trade. The strategic position of a few rattan material processors has enabled them to maintain and increase domestic prices for rattan at the same time, thereby increasing costs for furniture manufacturers. While domestic and international furniture manufacturers experience this as reduced access, their strategies included changing the materials they use in production to diversify from rattan. This strategy effectively led to the overall decrease of the global rattan furniture markets compared to other types of furniture.

Indonesia's share of the global rattan furniture market has decreased as a result of the ban. Combined with global increased costs and preferences for alternatives, this means that Indonesia is losing a piece of a shrinking pie and international manufacturers shift to materials over which Indonesia has less advantage. Indonesia's attempt to improve its ability to benefit from rattan furniture has had the opposite effect and competing international manufacturers and buyers have responded to decreased access to rattan by changing designs to other materials, which in turn decreased Indonesian manufacturers' ability to benefit from rattan by controlling the sale price in competition with these alternative products. This indirect effect of the Indonesian manufacturing phase of production strategy to benefit more from rattan has served to continue the trend of declining markets thereby reducing the ability to benefit from rattan by all GPN actors (with the notably opaque exception of illicit traders who may experience increased ability to benefit, but at great risk). This reduction in access is led by reduced export market access, but cascades into a number of changes at each phase of production, ranging from changing labour relations in Cirebon, to an increased concentration of power in Palu that enables processors to control supply better, to reduced orders for raw materials from the forest, which demotivates collectors from collecting rattan.

A final form of indirect effect of access is more latent. Processors determine the prices that are paid to bosses, who are able to extract minimum rent from rattan in order to motivate collectors to collect rattan from the forest. As the processors, like other actors, seek to maximise profits, they maintain low purchase prices, which continues to attract collectors only to the extent that other, more attractive livelihood activities, are lacking. This means that the ability of processors to control the

purchase price from the bosses is limited by collectors' access to cacao. There are therefore forces external to the GPN that affect actors' ability to benefit from rattan. So far, processors continue to be able to control the prices within this environment, which may be related to the depreciated value of cacao, and the reduced demand for rattan. As collectors shift more to alternative commodities based on low order volumes of rattan, the scarcity of rattan entering the market may serve to increase the leverage that collectors have over prices. This form of indirect effects relates to the 'moving forests' in which, due to the continually low prices of rattan paid to the collectors, and now the lower order volumes, actors managing rattan resources in the forests are increasingly inclined to engage in other livelihood activities. This could have (or possibly already has had) irreversible effects on the availability of rattan to all GPN actors.

Access is continually negotiated among actors within the GPN, and is shaped by issues of materiality and external governance. These negotiations are based on the positionality of actors within the GPN, but as I show, the effects of the negotiations of access could be counter-productive if they are detrimental to the entire GPN, as they are in this study. Therefore, access at one phase of production affects access at other phases in more ways than simple direct allocation of rent as a result of negotiation. Access at one phase of production can profoundly affect the entire GPN, creating indirect alterations in the ability to benefit from rattan for all actors.

One of the main contributions to knowledge that I made in this thesis is the endeavour of examining power dynamics within a GPN. The Ministry of Trade failed to consider the full extent of how access at one phase of production can affect another, leading to changes in the entire GPN. Policy makers enacted the ban to protect and build the Indonesian furniture industry, but the effect was contribution to the continuing decline and decreased ability of many industry actors to benefit from rattan. Only by undertaking a holistic study such as this could these effects have been indicated.

9.1.2 Actors use other mechanisms of access in a nested fashion to support access to export markets

Mechanisms of access facilitate or hinder implementations of other mechanisms of access. Actors arrange specific mechanisms of access in order to maximise their ability to benefit from a resource. For example, I showed how the modified roads enabled motorbike access to Utani. The motorbikes made mobile phone signals available close to the village. Better ability to communicate with bosses facilitated direct market access for the rattan collectors. Foremen therefore were no longer essential to market access and labour relations in the village shifted away from foremen and toward direct relations with bosses. I also showed that social relations and social identity played a key role in facilitating market access among processors in Palu. I suggest that these nested arrangements of mechanisms are re-shaped at each phase of production and over time. Ribot and Peluso (2003) emphasise the dynamism of mechanisms of access, and I build on this notion by focussing on how some mechanisms of access are used to strengthen others.

In the AMKRI-ASMINDO battle for representation of the furniture industry in Indonesia, AMKRI made several attempts to reduce the availability of facilities, for example, that would enable ASMINDO to have stronger annual exhibitions in Indonesia. Using social relations, they usurped ASMINDO's event organiser and facility in order to vie for ASMINDO's position as a marketing leader in Indonesia, ultimately leading to increased market access for its leadership and members.

Most of the time, mechanisms of access were implemented to serve better market access. There was one exception to this. In the forests of Utani, although rattan collectors were primarily concerned with the ability to access rattan markets, customary leaders emphasised the importance of rattan as a way for villagers to access the forest and to ensure continued usage of customary territories. I highlighted this in Chapter 5 by analysing authorities over the forest, and especially in areas of customary forest within the boundaries of the national park. The hierarchy of mechanisms of access are therefore not absolute nor agreed upon by all actors even

within the same village. In this instance, collectors and customary leaders share common interests in extracting rattan, but exhibit divergent rationale for doing so. This is a contrast of actors and non-actors using the same resource.

For the rattan collectors, rattan is primarily about income, although there are several peripheral benefits pertaining to social relations that build camaraderie. For customary leaders, rattan collection is about utilising the forest in a way that is consistent with the uses of their ancestors, and is used to legitimise and enforce Utani's claim over the forests. Customary leaders play an authoritative role over the management of the forests from which rattan is collected. Although they collect fees from outsiders, the discourse among leaders is not about income generation, but of maintaining their control over the forest. This is exemplified in the explanations of customary and statutory leaders in the village of why outsiders pay fees and Utani residents do not. Their answers are not about income generation, but because they have the rights over the forests, as handed down from their ancestors.

Among the structural and relational mechanisms of access used by actors within the GPN to improve the ability to benefit from markets, social relations, and particularly trust, were identified as key. Gereffi et al. (2005) argued that trust is a key factor in maintaining spatially dispersed relationships. Trust was important among collectors and bosses, often secured by the notion of 'help', which constituted cash advances and loans. These forms of 'help' served to strengthen the loyalty of collectors to bosses, and similarly from bosses to processors. At phases of production above the processors, where relationships are more spatially dispersed, there were no loans among actors, and advance payments are not interpreted as help, but part of business. They therefore do not promote loyalty, but meeting contractual agreements on time and according to specification was found to be important in developing trust.

However, market transactions occurred even when there was very little trust among actors. Manufacturers and buyers alike emphasised the importance of trust among trading parters, but trade continued without it, as shown using by an international buyer claiming that it was difficult to trust suppliers, but trades continued despite this

lack of trust in Chapter 7. A small retailer in the UK reported continued purchasing from the same supplier despite drastic price increases. They cited the cost and risks associated with seeking out a replacement, which signals that finding another partner to trust is difficult even when they found the price increases dubious. In this way, the imperfect information that buyers have about manufacturers in Indonesia promotes a phenomenon that might resemble trust or loyalty, but is actually a lack of knowledge about alternative suppliers available to them in the market, and a fear that other suppliers may be less trustworthy than current ones. This lack of alternatives is similar to that which the collectors face with the bosses, the bosses face with processors, and the manufacturers face with wholesaler/processors. In these cases, though, the lack of alternatives is a *de facto* condition, because there are very few actors performing these important GPN functions. In the case of retailers, it is a perceived lack of alternatives that results from a lack of knowledge about other suppliers that serves a similar constraining function.

As Cook et al. (2005) suggested, in the absence of trust among market actors, institutions can play a role in building trust, which is part of the ETPIK and L/C payment system, along with recent additions of SUCOFINDO inspections. These processes aim to ensure that specifications are met and payments are made to protect Indonesian manufacturers on the one hand, and to build international confidence in Indonesian production on the other. These institutions may serve to explain how market transactions can continue to function in the absence of trust among trading partners when trust is placed in third party accreditation and financial transfer systems.

My analysis of mechanisms of access applied in a nested fashion helps to understand how and in what instances specific mechanisms of access are applied. Ribot and Peluso (2003, p.173) suggest that mechanisms of access fit together in a "web of access relations in which each is embedded." I add to this argument that mechanisms of access serve to strengthen or weaken others, which may occur in a hierarchy of mechanisms of access, although I agree with Ribot and Peluso that these hierarchies cannot be imposed and are not static.

9.1.3 The trade ban benefited a narrow range of actors at the expense of most other actors

My third main finding addresses how the 2011 ban re-shaped the ways that actors were positioned to benefit from rattan and that larger manufacturers, manufacturers of higher quality products targeting niche markets, illicit actors involved in rattan material trade, and a few processors benefited from the ban while most other actors experienced reduced ability to benefit from rattan. The ban was designed to improve the ability of Indonesian furniture manufacturers to benefit from rattan. This, as an explicit strategy as expressed by AMKRI and the Ministry of Trade, would necessarily mean that manufacturers in other countries would be excluded from benefiting from Indonesian rattan. The results of the ban, however, were quite different than those anticipated by industry actors and the government.

First, processors were burdened by the ban, with the smaller processors going out of business and the larger, better connected processors remaining, although operating at reduced capacities. Larger processors and manufacturers were better able to adapt to changes in the GPN through their market, social and labour relations and their scale, which allowed them to absorb additional costs. The remaining processors in Palu, for example, have tightly integrated market relations with wholesalers in Java, with dedicated sales to companies with both processing and wholesaling facilities.

Second, non-Indonesian manufacturers have continued to source Indonesian rattan as well as compensate for some of the reduced ability to obtain Indonesian rattan by sourcing from other countries. Indonesian rattan is sourced by illicit actors, who extract rent once enjoyed by government actors through export tariffs and legal traders of rattan. Non-Indonesian countries have enjoyed an increase in market share after the ban, even as total markets continue to decline.

My analysis shows that actors extracting the most rent from the GPN are not always those further downstream. Retailers and manufacturers extract less rent than processors. Therefore, from a GPN perspective, the ability to benefit from rattan has

more to do with strategic positioning in the network than simply having more capital (Belcher 2003) or dealing in more sophisticated upgrading processes in buyer or producer-driven trade networks (eg. Gereffi 1999).

9.1.4 Materiality has an influence on access

Following the works of Ribot and Peluso (2003) who theorised that there are several mechanisms of access by which actors gain, maintain and control access, I suggest that materiality of the *thing* being exchanged is a significant factor in shaping the context in which the ability to benefit is positioned. This contribution relies on Barham et al. (1994) conceptions of materiality of natural resources and is important in determining the contexts in which mechanisms of access are applied.

Chapter 5 showed that materiality affected the extent to which villagers in Utani and Desa Dua were able to benefit from rattan by its locational distribution, and that value and quality aspects of rattan influenced access throughout the GPN, including the 'all species all sizes' issue, and they ways in which rattan is valued based on scarcity and abundance. Further, while the locational distribution of rattan made it difficult to monopolise in the forest as Barham et al. (1994) theorised, once it is upgraded, it was quickly monopolised by a small group of processors and wholesalers. After it was translocated to Cirebon and sold to factories, it became de-monopolised again because there is no monopoly among the manufacturers, but increasingly to the benefit of elite factory owners.

The biogeophysical properties of rattan in the forest resist monopolisation because first, it is harvested from forests, which remain physically challenging and laborious to enter and extract rattan. Second, the Utani forest that hosts rattan, like many others, is under the customary authority of specific tribes. The biogeophysical specificities of rattan in remote areas under customary control determine that Utani actors have authority over who is permitted to collect rattan and under what conditions. Third, the social relations among bosses and collectors has produced a level of loyalty among actors in the specific geographies in which rattan is found. These factors, as shown in Chapter 5, served to exclude specific groups such as

furniture manufacturers from Java who wanted to collect rattan directly from the source, and ensure that Utani has the authority to control the extent to which rattan collectors from neighbouring villages can benefit from rattan.

Just as Chapter 7 showed that manufacturers are 'squeezed' between high rattan material costs and low purchase prices set by buyers, collectors are squeezed between the sale prices of rattan, set by the bosses who are constrained by the processors, and the material properties of rattan that create labour costs and risks to the process of collection and transportation to Belia. Chapter 4 explored the physical requirements of rattan collection and Chapter 5 showed that collectors prefer livelihood activities that pose fewer risks and increased regularity of sales. These material aspects of rattan limit the ability of rattan collectors to benefit from rattan, especially in comparison to cacao. At the same time, they enable customary users to maintain and control access over rattan resources in the forest.

On a global level, the biogeophysical concentration of rattan, especially high-quality rattan in Indonesia, affects the market. On the one hand, this could be expected, but on the other hand, as others have found, links between social worlds (including markets) and the materiality of the commodity traded are often under-appreciated or unrecognised (cf. Tsing 2013). The ban illustrates the effect of materiality on markets well. The notion that the entire GPN could be affected by the ban was triggered by an early interview with a rattan furniture manufacturer who was primarily concerned about a sudden change in the quality of rattan furniture available in the global market. The ban was intended to solve the immediate problem of the limited supply and high cost of rattan cane in Indonesia and to cut manufacturers in competing countries from using high-quality Indonesian material. This, combined with other policy measures such as the 2009 ban on the export of un- and semi-processed rattan from Java, contributed to an overall reduction in the quality of rattan furniture in the market (both by forcing better manufacturers in other countries to use inferior materials sourced from other countries, and by driving buyers to Indonesia which does not yet have the capacity to produce enough of the high-quality products). This quality reduction averaged down the quality of the global supply of rattan furniture. Akerlof (1970) referred to this problem of 'lemons' as one that ultimately affects

consumer impressions of overall products. In the case of rattan furniture, this meant that lower quality products in the markets turned consumers to consider rattan furniture as of inferior design and durability to alternatives. I made this argument in Chapters 7 and 8 through the declining markets, which I related to Indonesia's biogeophysical positioning to control markets and the policies that it has put in place to protect its ability to benefit from rattan.

The relationship between materiality and market is a dialectic rather than a linear cause and effect relationship. So, far, I have focussed on how materiality affects access, but value is also socially constructed. Brock (1968) and Cialdini (2009) suggest that as scarcity increases there is a tendency for the value of the product to increase. My finding suggests that this is susceptible to the power dynamics within the GPN (cf. Hudson 2011). As Castree and MacMillan (2001) found, scarcity and abundance are relative to social demand. While abundance and grade availability are significant aspects of value (Barham et al. 1994), markets influence these factors. I demonstrated this by positioning forests and rattan against cacao production in which I show how markets have an impact on the biogeophysical availability of rattan in the forest, thereby affecting the materiality of rattan itself.

In the following section, I focus on theoretical reflections from my empirical findings. I look at my findings through the lenses of GPN power dynamics, mechanisms of access, elite capture and materiality to suggest some ways in which my findings contribute the bodies of theory of access and GPNs.

9.2 Theoretical reflections

My main empirical findings revolve around the power dynamics among actors. Specifically, they are that 1) the effect of access at one phase has direct effects on access at another, and indirectly affects the entire GPN; 2) different actors use different mechanisms of access to benefit from rattan, but that market access is the primary mechanism that derives benefit; 3) the trade ban on un- and semi-processed rattan served to benefit only a narrow range of actors; and 4) that the materiality of

rattan shapes the context in which actors apply mechanisms of access. In this section, I reflect on theories that relate to these finding and offer my own novel theoretical contributions.

9.2.1 On GPN power dynamics

The governance structures of the rattan GPN as a whole shifted in different ways at different phases of production. Specific actors played specific roles in shaping GPN governance structures. For instance, the processors were widely understood by manufacturers to control the price and availability of rattan material. To an extent, this is consistent with my findings, but processors as a group suffered greatly from the ban, as evidenced by the sudden closures of many companies in Palu. Therefore, processor control over the availability of rattan was limited to a select group of elite actors, who have also experienced decreased operations despite the closure of their competition– primarily because the surviving companies were already positioned well as some of the larger and better socially connected processors.

The ability to analyse a tangled polycentric governance structure is one of the most appealing aspects of GPN theory over chain thinking (Coe & Hess 2006; Levy 2008). GPN governance is about the "rules, institutions, and norms that channel and constrain economic activity and its impacts" (Levy 2008, p.2). My findings reinforce the notion that governance in a production network is more about the continually shifting dynamics of power among actors than about identifying a single driver, pointing to the concept of 'real markets' highlighting the complexities of markets when power dynamics among actors are recognised (Ribot 1998; Sikor & Pham 2005).

Henderson (2002) suggests that power dynamics in GPNs are subject to considerable variation over time. I showed that specific policy changes stimulated radical changes within the GPN, such as the concentration of processors in Palu after the ban took effect, which enabled them to control prices even though supply far exceeded demand. The ban also had the effect of creating an entirely new type of actor related to illicit trade of rattan, as others have noted in past bans (see Peluso 1992b; Straw & Szwajkowski 1975). The inclusion of illicit actors drastically raised international prices of rattan cane in 2012 and 2013. According to processors in Palu, there is

little awareness about who is doing this trading and they have lost their high sales prices to international buyers since they sell to all domestic buyers at the same price. This has shifted the control over rattan prices to two sets of actors: one for domestic and one for international, the latter being a somewhat nebulous group, a detailed exploration into which is outside the bounds of this study.

I analysed other shifts in Chapter 7 pertaining to the ability of large and higher-end furniture manufactures to survive under several new policy regimes while smaller manufacturers adjusted by sub-contracting labour or going out of business. This increasingly puts the power within the GPN into the hands of the larger factories, but even they are unwittingly unravelling the very market they wish to control.

At one point during this study, as I followed the trades of rattan, I questioned whether any group of actors could actually be considered a driver of the GPN. I was confident in my understanding of the processors controlling the price and availability of rattan, but expected that manufacturers, especially those associated with AMKRI, would have a major position of control. They did not. Then, I was surprised when I spoke with several retailers in the UK who also were not in a position to extract large rents from the GPN. It was only at the end of my study, and after extensive analysis, that I was resolved that no single group of actors controls rattan markets.

I show that alternative product actors have a role to play in who governs the rattan GPN by influencing consumer choice. Manufacturers are left with little leverage in international markets, squeezed between processor/wholesaler costs and buyer thresholds. The Government of Indonesia plays a role in setting policies that affect access, but also in supporting industry associations like AMKRI and ASMINDO to organise manufacturers and market Indonesian products. Processors have an established role in driving the costs of rattan materials akin to intermediary-driven value chains (see Hyman 1996; Neumann & Hirsch 2000). So far, collectors have not proven to be a driver in the GPN, but if organised among the villages of Sulawesi, they maintain that latent potential.

9.2.2 On mechanisms of access

Although Ribot and Peluso (2003) was cited 829 times[90] in over a decade since its publication, the vast majority of these publications refer to the definition of access and rarely seek to conduct an empirical analysis of the mechanisms of access themselves, as Ribot and Peluso called for in *A Theory of Access* (for exceptions, see Corbera & Brown 2010; Ginger et al. 2012; He 2010; Stahl 2010). There has therefore been little work done on understanding how mechanisms of access interact with one another and in what ways they relate to one another.

This analysis sheds greater light on the interaction among mechanisms of access employed by different actors at different levels. Ribot and Peluso (2003) suggested that mechanisms of access are dynamic and may change over time. Actors use several mechanisms concurrently. In this study, I highlight that to GPN actors, there was a consistent focus on markets as the primary mechanism of access and other mechanisms served to enhance market access.

Just as He (2010) found in an access analysis of matsutake mushrooms in China, markets proved the dominant mechanism of access in this study, however, other mechanisms of access also proved important. I suggest that in this study, market access is dominant for most actors. In this way, mechanisms of access were nested in one another, leading to the primary mechanism of markets.

The theoretical significance of this finding is that mechanisms of access are not simply employed concurrently, but are used by actors in order to serve a primary mechanism of access. This logic was consistent among actors throughout the study, and consistently contrasted with the mechanisms of access employed by non-actors, which had more to do with authority than market access. Among non-actors such as the Ministry of Trade, for example, markets served authority, but nevertheless, mechanisms of access were nested in one another. Thinking of mechanisms of access in a nested sense, which may change from actor to actor, may create new ways of understanding why some mechanisms of accesses are employed by different

90. According to http://scholar.google.com, accessed April 27, 2015

actors. Ribot and Peluso (2003, p.160) describe the interdependence of mechanisms of access but suggest that "an absolute or abstract hierarchy of mechanisms cannot be imposed". I agree with this in a universal sense, but suggest that hierarchies of mechanisms of access are important to understanding access at individual and collective actor levels without generalising that the same patterns of hierarchies will apply to other cases.

I acknowledge that in other cases, market access is not the driving mechanism of access. Rights and social identity may be the main mechanisms of access as in another study I conducted (see Myers & Muhajir in press). I therefore do not suggest that markets are always, or even usually the primary mechanisms of access. Non-actors and indirect actors, such as customary leaders in Utani, are more concerned about the ability to benefit from the forest through customary authority rather than market access and tended to emphasise the cultural importance of collecting rattan rather than the market-based benefits. Similar to He (2010), there are important cultural elements associated with customary authorities and social identity at the forest level, but I also suggest that there are important social identity and relations mechanisms without which market access may not be possible even at higher levels within the GPN.

9.2.3 On elite capture

Theories of elite capture of NTFPs revolve around the tendency for profitable NTFPs to come under the control of elites (Belcher 2005; Dove 1993; Heubach et al. 2011; Neumann & Hirsch 2000; Springate-Baginski & Blaikie 2007; Thoms 2008). This means that more benefit is likely to be obtained as the product is processed and transported by key private actors or the state (Arnold & Ruiz Pérez 1998; Marshall, Newton & Schreckenberg 2003; Sunderland, Ndoye & Harrison-Sanchez 2011). I showed that from a GPN perspective, this is not always the case.

At the village level, the position of local elites to benefit from rattan shifted due to the collectors' ability to negotiate directly with bosses because of a new road and the availability of a mobile signal closer to the village. At the same time, village elites had more choices in terms of livelihoods activities as Thoms (2008) suggested and therefore preferred to exercise those choices, primarily for cacao. Further, the

biogeophysical characteristics of rattan in the forest and under the customary control of Utani, combined with the strong social relations developed among actors within Central Sulawesi, mean that elite downstream GPN actors were prevented from assuming any control over rattan extraction processes. This finding supports the Barham et al. (1994) assertion that natural resources found in remote locations resist monopolisation.

Bosses, although only few, extract very marginal rents from rattan as the collectors are disinterested to work for less and the processors are unwilling to pay more. The remaining processors have elite status due to their market savvy, international social and market connections, and their unique position as intermediary between outer islands and Java. Although the remaining processors, as analysed in Chapter 6, are in strong positions, an observer could easily and mistakenly blame the processors (as many manufacturers do) as being responsible for damaging overall markets by maintaining high prices and extracting higher rents than other actors in the GPN. However, as Henley (2007) points out, elites may extract excessive rents, but they also make social contracts that can serve to bind trade networks together. The processors and illicit traders are providing a crutch to rattan furniture markets as a whole and the processors, in particular, play an invaluable role that is indispensable within the GPN. While some authors have found that intermediaries and elites derive an uneven proportion of benefits within trade networks (de Beer & McDermott 1996; Iversen et al. 2006), others see the strategic positioning of these intermediaries as a critical part of the trade network (He 2010; Jensen 2009). In this case it is both. On the one hand processors are in a position of power and able to claim profits unattainable at other levels, which puts a squeeze on other actors. On the other hand, they play a critical role in trade, the absence of which is a detriment to the access of all actors to rattan materials.

The remaining wholesalers have a monopoly on the Cirebon and Surabaya supply markets. Manufacturers are in the most capital-intensive position in the GPN. They are the link between furniture, the highest-value form of rattan in Indonesia, and export markets. Yet, they have very little control over market prices. Retailers in international markets are in no better place since competition with other products

allows for very little control over the retail prices of rattan furniture, with several retailers reporting that they are better positioned to derive profits from synthetic rattan or other types of furniture.

Following Peluso (1992b) and Straw and Szwajkowski (1975), exports of un- and semi-processed rattan continued despite the ban, and were pushed underground. The elite group of manufacturers has been stymied to take control over the GPN even on a highly commercialised product. Therefore, taking a GPN access analysis of rattan, the extent to which elites are able to take control over rattan, as an NTFP, depends heavily on actors at other phases of production and the materiality of rattan itself.

I therefore find that while a study on just two sets of actors, such as rattan collectors and bosses/processors might evidence elite capture, a GPN approach shows that issues of elite capture are more complex and may increase or decrease at different phases of production. Without disputing the elite capture found by others (cf. Belcher 2005; Dove 1993; Heubach et al. 2011; Neumann & Hirsch 2000; Springate-Baginski & Blaikie 2007; Thoms 2008), I suggest that access analysis among all phases of production within the GPN shows that there are several factors that affect elite capture beyond profitability of an NTFP and phase of production.

9.2.4 On materiality and access

Ribot and Peluso (2003) made a pivotal contribution to understanding access as beyond rights and about the ability of actors to benefit. They describe access as a function of rights, illicit access, and structural and relational mechanisms of access exercised in relations among actors. I engaged in all of those 'bundles of powers' to understand access, but also explored the role of materiality of the natural resource as an object of benefit. Ontologically, rattan could be considered as an actor within the GPN, having influence on the actions of other actors as Actor-Network Theory would suggest (Freudenburg et al. 1995; Latour 1999, 2005; Law 1999), but I stop short of explicitly claiming that rattan has agency equated with actors that make

decisions and choices. Rather, I follow Castree and MacMillan (2001) in an appreciation of the differences between the agency of natural and social forces, considering them both important, but different.

I suggest that the materiality of rattan constitutes constraints to the extent to which rights-based, illicit, and structural and relational factors of access can be exercised by actors within the GPN. It therefore serves as a mediating filter constraining the efficacy of access strategies employed by actors. Most evident at the forest level, the materiality of rattan has direct influence over labour requirements for extraction due to the biogeophysical properties of rattan in the forest that affect when and how rattan is collected, as well as governance structures that comprise authorities that control access to forests (both customary and statutory).

I therefore suggest that both access and GPN literature tend to under-emphasise the role of materiality of natural resources in attempts to understand access and GPN governance and that it is an important variable for both.

9.3 Implications for policy

The empirical findings of this study provide the opportunity to inform policy; especially trade policy. Although one of the main findings relates to the ways in which the ban failed to benefit Indonesian rattan furniture sales as they were intended, this cannot be interpreted as a blanket statement on the failure of protectionist trade policies nor an endorsement of liberalised international trade. The focus of this analysis is on the ways in which the ban served to benefit elites and increased the burdens on other actors and specific phases of production. The Indonesian Ministry of Trade was aware that the implementation of the ban would have adverse effects on the outlying islands, but assumed that over time, increased sales in Indonesian rattan furniture would result in recovery of rattan material demands and benefit the country as a whole. This assumption was misguided from many perspectives. First, the level of illicit trade was underestimated. One of the driving forces behind the ban was circuitous avoidance of export quotas, yet the expectation under the ban was that illicit trade would be stifled. Second, the decrease in rattan material sales led to a concentration of rattan processors in Palu, which increased their ability to control market supply and prices. This shows that power dynamics among individual actors are as important in policy making as considerations of whole industries and that in this case, these power dynamics were underestimated by policy makers. Third, the global demand for rattan furniture was overestimated, especially against alternative products. Rather than global buyers of rattan furniture shifting from other countries to Indonesia, the market has shifted in favour of competing products over which Indonesia has no competitive advantage. Finally, any temporary lag in market demand for rattan from the forest provides incentives for rattan collectors to shift to alternative products, which could have lasting impacts on the availability of rattan materials. At the same time, alternative products may increase in value while rattan stays stagnant, as cacao has done in the past and other crops, such as oil palm are currently trending (Sayer et al. 2012).

I also examined other regulatory processes, such as ETPIK, and showed that only larger and high-end firms have been able to navigate these systems, with many smaller and medium sized firms struggling or gone out of business. Even permits to extract rattan from the forest are unintelligible to local collectors who provide their identity cards to the bosses to obtain permissions.

The policy implications of these analyses therefore point not to doing away with protection of domestic industries and forests, but to doing so with a broader understanding of the implications that such policies have on different actors within the GPN. While AMKRI proved to have the louder voice in the campaigns that led to the ban, other organisations, like APRI, representing the rattan processors, were also making their disapproval of the ban clear. But AMKRI membership was better connected to the political elite and represented some of the largest and best-resourced furniture factories in the country.

At the time of writing this chapter, the Indonesian furniture industry is mired in debates about the certification of legal timber products for export (SVLK), part of the Voluntary Partnership Agreement with the European Union under Forest Law Enforcement, Governance and Trade. This study informs those debates as being more careful to consider the different ways that different actors at different phases of production would be affected by policy changes. AMKRI has been an open critic of the SVLK and is leading the charge, having the ear of the President, to relinquish small producers from the verification process (Jong April 18, 2015). Much of the reasoning applied to exempting small producers from SVLK are similar to the difficulties that smaller actors have in surviving under ETPIK, primarily related to the challenges in navigating the processes and the costs in terms of cash and time.

Other industries may benefit from a similar research approach. In late 2014, Indonesia upheld a ban on the export of ore (Cahyafitri December 4, 2014) and several countries, including Indonesia, have log export bans in place (OECD 2010).

Based on the findings of this study, I suggest that the impetus for policies that have proven detrimental to non-elites and indirectly to elites as well, were well-intentioned from a certain vantage point. The ban was designed to ensure the

domestic furniture industry could compete internationally, ETPIK was designed to increase buyer confidence in Indonesian products and to facilitate payment and standards, rattan extraction permits were designed to protect natural resources and ensure local communities are able to benefit from the resources around them. The implementation of these policies, however, were overly informed by political elite (particularly in the Ministry of Trade, but also the Ministry of Forestry as persuaded by AMKRI) who either disregarded, or underestimated the effects of such policies on specific groups of actors.[91] In some cases, such as promises to deliver contracts for rattan furniture production in the outlying islands, compensation to these actors failed to materialise.

More generally, and especially pertaining to international trade, decisions informing protectionist policies must be informed by not only the direct effects of the policy, but also by the indirect effects, which could contribute to declining overall markets and a loss of competitive advantage to alternative products. The full extent of neither the direct nor indirect effects have become completely clear due to the acknowledged limitations of this study. Therefore, in the next section, I make some suggestions for future research directions.

91. Schreckenberg and Mitchell (2011) highlight that an incomplete consideration for factors of external governance can lead to unexpected outcomes.

9.4 Further research directions

I have crafted some meaningful insights into access within rattan, NTFP and natural resource GPNs. At the same time, I raise some questions both as a result of my own limitations and through my findings. I present some of the key areas for future research that would be beneficial to further elucidate issues of access in a rattan global production network in Table 9-1.

Table 9-1: Ideas for further research

Suggestion	Research gap	Insights from this study
Conduct a full network analysis of the entire Indonesian rattan raw material and furniture industries, including a full survey of factories and home industries.	There are a lot of unknown actors in the rattan trade at the raw material levels, and an unknown number of operating factories because government records are in accurate.	Understanding of all network actors will be better able to focus social network analysis. Statistically valid samples could be drawn for further research.
Research the actual flows and exchanges in rattan smuggling.	Most of the knowledge I have on the issue is either deductive, third party or hearsay. There is no data on who exactly is moving rattan to other countries and that exacts what their benefits and risks are.	The illicit trade of rattan would be instructive as it will show who, exactly, is benefiting from it (Customs officials, policy, port authorities shippers etc). How much is done by previous legitimate shippers? How many of these actors smuggled rattan in past bans? Did the ban turn legitimate shippers into smugglers?
Include more villages in the study, including rattan cultivators from Kalimantan and Sumatra.	There exist separate studies, many of which I have cited, on rattan farmers. So far, the same methods have not been applied to both farmed and wild rattan production.	The differences in the effect of the trade ban on wild and farmed rattan production could provide insight into differential effects of the ban.
Explore in more detail how village actors make decisions that permanently affect forest-based livelihoods by displacing forest with agricultural land.	Although there is considerable research on choices and alternatives, the ways in which actors make irreversible choices that result in the loss of forest resources is less clear.	Village actors prefer cacao to rattan cultivation, but the extent to which the permanency of preferring alternatives to forest is considered remains unclear.
Conduct cross-scale, polycentric analysis of power dynamics with other natural resource commodities with policies restricting or enabling trade.	Unknown power dynamics and ill-conceived implications of policy changes.	The impacts of the ban were not as foreseen by industry and policy makers because of a lack of attention to the intricacies of power dynamics among a full range of actors.
Compare the rattan export ban with other un- and semi-processed natural resource trade bans.	There is a considerable body of literature on log trade bans, but there may be instances of other NTFPs being banned from trade.	Such a study would help to make further generalisations about trade bans for NTFPs and natural resources.

9.5 Conclusion

I set out to tell the story about rattan and the social, political, economic and materiality conditions of the ability of various actors at different places within the GPN to benefit from it. I have elucidated some of the power dynamics among actors that directly result in redistribution of benefits within the GPN in the favour of well-positioned actors, and indirectly in the decline of global markets, reducing the demand for rattan and thereby shifting land use from forest-based to agricultural, leading to a reduction in forest area. I told this story through an analysis of the rattan GPN, starting in the forest and leading to final markets in the UK, and used the narrative of the Indonesian ban on the export of un- and semi-processed rattan to illustrate how access to rattan has changed.

Actors at some phases of production, such as primary processing in Sulawesi and especially the collectors, were adversely affected by the ban on un- and semi-processed exports because of the loss of market and shift of benefit to illicit actors. Markets were the main mechanism of access, and the ban diminished the ability to benefit from rattan through markets. Actors that benefited from the ban, primarily illicit actors and large or high-end furniture manufacturers, were able to benefit through the ability to adapt labour relations to changing contexts and also maintain markets through strong social relations, including those built on trust.

These findings answer the question of how GPN actors benefit (or fail to benefit) from rattan originating in and near Lore Lindu National Park, Indonesia. Although GPN research acknowledges the importance of power dynamics among actors to understand network governance structures, by using access analysis within a GPN, I have provided insight into both bodies of literature. To GPN, access analysis offers a systematic way of not only identifying the winners and losers in network relations, but also the ways in which specific actors strive for access and respond to the changing access of other actors. To access analysis, GPN offers a way of thinking about access not only of individual actors in a trade network, but also actors within

the global range of phases of production. This allows for an additional layer of access analysis that seeks to understand the ways that access at some phases of production affects the access of other phases of production.

My empirical findings both support existing literature in many ways, but also suggest nuances to what is already known. I showed the importance of understanding access at a GPN level by phases of production and the range of actors involved in GPN governance structures. Only by examining how actors at different phases of production relate to one another and experience changes within the GPN can a clear understanding of access and power dynamics be understood. I showed that mechanisms of access are applied in a hierarchy to some extent and that only in the forests was access to rattan not guided completely by markets, but also by a social identity tied to customary authority over the forest. Elite capture is proven to be a non-linear, non accumulative process that is subject to fluctuations depending on structural changes in GPN governance. Not only do GPN drivers sometimes lack clarity, but they are affected by the alternatives available to actors at different phases of production. Finally, I also make the case for understanding the influence of the natural resource itself on the ability to benefit, suggesting that the materiality of the resource can play similar roles to other actor in terms of mediating access.

My findings are important for understanding the implications of trade and extraction-related policies for different types of actors, both within and among phases of production and specifically for NTFPs. I show that although the direct effects of the ban on the export of semi- and un-processed rattan were considered prior to the implementation of the ban, the indirect effects were not anticipated and have yielded a number of undesirable effects, which could have lasting impacts on rattan markets and forests. This means that domestic policies aimed at protecting resources and industries would benefit from a broader assessment of the implications of policy, including a more clear understanding of conditions outside national boundaries.

References

Abbate, M., 2007. The “sweet desire” cacao cultivation and its knowledge transfer in Central Sulawesi, Indonesia. *STORMA Discussion Paper Series.* **(17).** Research Project on Stability of Rain Forest Margins (STORMA): Büsgenweg.

Abdurahman M., 2013. Industri Rotan Cirebon Alami Krisis Pekerja. Bisnis Jabar, [online] November 23. Available at: <http://www.bisnis-jabar.com/index.php/berita/industri-kerajinan-rotan-cirebon-alami-krisis-ketenagakerjaan>. [Accessed on November 23, 2013].

Abdussalam A., 2012. Indonesian govt claims increase in rattan exports. Antara News, [online] September 11. Available at: <http://www.antaranews.com/en/news/84455/indonesian-govt-claims-increase-in-rattan-exports>. [Accessed on April 24, 2013].

Adams, W.M. & Hutton, J., 2007. People, parks and poverty: political ecology and biodiversity conservation, *Conservation and Society***, 5**(2), pp. 147-83.

Africa Trading, n.d. About us. [online] Available at: <http://www.rattanafrica.co.za/htm/about.htm>. [Accessed on February 27, 2015].

Agarwal, B., 2010. *Gender and green governance.* Oxford University Press: New Delhi.

Agrawal, A., 2005. *Environmentality: technologies of government and the making of subjects.* Durham, NC: Duke University Press.

Ahenkan, A. & Boon, E., 2011. Non-timber forest products (NTFPs): clearing the confusion in semantics, *Journal of Human Ecology***, 33**(1), pp. 1-9.

Akerlof, G.A., 1970. The market for "lemons": quality uncertainty and the market mechanism, *The Quarterly Journal of Economics***, 84**(3), p. 488.

Alvesson, M. & Sköldberg, K., 2009. (Post-) positivism, social contructionism, critical realism: three reference points in the philosophy of science, in *Reflexive methodology,* SAGE: London.

AMKRI, 2014. Trade Ministry officially launches second edition of Indonesian international furniture expo, IFEX 2015. *IFFEX 2015.*[online] Available at: <http://ifexindonesia.com/2015/trade-ministry-officially-launches-second-edition-of-indonesian-international-furniture-expo-ifex-2015/>. [Accessed on December 15, 2014].

Angelsen, A. & Wunder, S., 2003. Exploring the forest-poverty link: key concepts, issues and research implications. *CIFOR Occasional Paper.* **(40).** CIFOR: Bogor.

Angelsen, A. et al., 2014. Environmental income and rural livelihoods: a global-comparative analysis, *World Development*.

Appadurai, A., 1986. Introduction: commodities and the politics of value, in A. Appadurai (ed.), *The social life of things,* Cambridge University Press: Cambridge.

Aquino, A. & Adriano, J., 2006. FRAME Philippines rattan value chain study. International Resources Group: Washington DC.

Aragon, L.V., 2011. Where commons meet commerce: circulation and sequestration strategies in Indonesian arts economies, *Anthropol Work Rev***, 32**(2), pp. 63-76.

Arnold, J.E.M. & Ruiz Pérez, M., 1998. The role of non-timber forest products in conservation and development, in E. Wollenberg & A. Ingles (eds.), *Incomes from the forest,* Center for International Forestry Research (CIFOR): Bogor.

– 2001. Can non-timber forest products match tropical forest conservation and development objectives? *Ecological Economics***, 39**, pp. 437-47.

Arulpragasam, J., Goeletti, F., Atnic, T.M. & Songwe, V., 2004. Trade in sectors important to the poor: rice in Cambodia and Vietnam and cashmere in Mongolia, in K. Krumm & H. Kharas (eds.), *East Asia integrates: a trade policy agenda for shared growth,* The International Bank for Reconstruction and Development / The World Bank: Washington.

Bacchetta, M., Beverelli, C., Cadot, O., Fugazza, M., Grether, J., Helbie, M., Nicita, A. & Piermartini, R., 2013. *A practical guide to trade policy analysis*. World Trade Organization and United Nations: Geneva.

Badan Pusat Statistik Indonesia, 2013. Gross domestic products by industrial origin. [online] Available at: <http://www.bps.go.id/eng/pdb.php>. [Accessed on May 19, 2013].

Bair, J., 2005. Global capitalism and commodity chains: looking back, going forward, *Competition & Change*, **9**(2), pp. 153-80.

– 2008. Analysing global economic organization: embedded networks and global chains compared, *Economy and Society*, **37**(3), pp. 339-64.

– 2009. Global commodity chains: genealogy and review, in J. Bair (ed.), *Frontiers of commodity chain research,* Standford University Press: Stanford.

Bakker, K., 2005. Neoliberalizing nature? Market environmentalism in water supply in England and Wales, *Annals of the Association of American Geographers*, **95**(3), pp. 542-65.

Bakker, K. & Bridge, G., 2006. Material worlds? Resource geographies and the 'matter of nature', *Progress in Human Geography*, **30**(1), pp. 5-27.

Baquero E.O., 2013. No "hot rattan" at factory: BOC. Sun Star Cebu, [online] June 28. Available at: <http://www.sunstar.com.ph/cebu/local-news/2013/06/28/no-hot-rattan-factory-boc-289655>. [Accessed on June 29, 2013].

Barber, C.V., Matthews, E., Brown, D. & Brown, T.H., 2002. *The state of the forest: Indonesia*. Forest Watch Indonesia: s.l.

Barham, B., Bunker, S. & O'Hearn, D., 1994. Raw material industries in resource-rich regions, in B. Barham, S. Bunker & D. O'Hearn (eds.), *States, firms and raw materials: the world economy and ecology of aluminium,* The University of Wisconsin Press: Madison.

Barnes, B., 1988. *The nature of power*. Polity Press: Cambridge.

Barney, J., 1991. Firm resources and sustained competetive advantage, *Journal of Management*, **17**(1), pp. 99-120.

Barr, C., Dermawan, A., McCarthy, J. & Resosudarmo, I., 2006. Forests and decentralization in Indonesia: an overview, in B. Setiono, M. Moeliono, et al. (eds.), *Decentralization of forest administration in Indonesia: implications for forest sustainability, economic development and community livelihoods,* Center for International Forestry Research: Bogor.

Barrientos, S. & Smith, S., 2007. Do workers benefit from ethical trade? assessing codes of labour practice in global production systems, *Third World Quarterly*, **28**(4), pp. 713-29.

Beach, D. & Pedersen, R.B., 2013. *Process-tracing methods*. The University of Michigan Press: Ann Arbor.

de Beer, J. & McDermott, M., 1989. *The economic value of non-timber forest products in South East Asia*. The Netherlands Committee for IUCN: Amsterdam.

– 1996. *The economic value of non-timber forest products in South East Asia*. 2nd ed. The Netherlands Committee for IUCN: Amsterdam.

Belcher, B., 1998. A production-to-consumption systems approach: lessons from the bamboo and rattan sectors in Asia, in E. Wollenberg & A. Ingles (eds.), *Incomes from the forest,* Center for International Forestry Research (CIFOR): Bogor.

– 2001. Rattan cultivation and livelihoods: the changing scenario in Kalimantan, *Unasylva*, **52**(205).

– 2003. What isn't an NTFP? *International Forestry Review*, **5**(2), pp. 161-8.

– 2005. Forest product markets, forests and poverty reduction, *International Forestry Review*, **7**(2), pp. 82-9.

– 2007. The feasibility of rattan cultivation within shiftin cultivation systems: the role of policy and market institutions, in M. Cairns (ed.), *Voices from the forest,* Resources for the Future: Washington.

Belcher, B. & Schreckenberg, K., 2007. Commercialisation of non-timber forest products: a reality check, *Development Policy Review*, **25**(3), pp. 357-77.

Belcher, B., Imang, N. & Achdiawan, R., 2004. Rattan, rubber, or oil palm: cultural and financial considerations for farmers in Kalimantan, *Economic botany*, **58**, pp. 77-87.

Belcher, B., Ruíz-Pérez, M. & Achdiawan, R., 2005. Global patterns and trends in the use and management of commercial NTFPs: implications for livelihoods and conservation, *World Development*, **33**(9), pp. 1435-52.

Bergman, M.M., 2008. The straw men of the qualitative-quantitative divide and their influence on mixed methods research, in M.M. Bergman (ed.), *Advances in mixed methods research,* SAGE Publications: London.

Bernstein, H., 1996. The political economy of the maize filière, *The Journal of Peasant Studies*, **23**(2-3), pp. 120-45.

Berry, S., 1989. Social institutions and access to resources, *Africa*, **59**(01), pp. 41-55.

– 1992. Hegemony on a shoestring: indirect rule and access to agricultural land, *Africa-London-International African Institute*, **62**, pp. 327-.

– 1993. *No condition is permanent: the social dynamics of agrarian change in Sub-Saharan Africa*. University of Wisconsin Press: Madison.

Bhaskar, R., 1975. *A realist theory of science*. The Harvester Press: Sussex.

Bhat, K.M., 1996. Grading rules for rattan: a survey of existing rules and proposal for standardization. *INBAR Working Paper.* **(6).** International Network for Bamboo and Rattan: New Delhi.

Biggs, N., Lloyd, E. & Wilson, R., 1986. *Graph Theory, 1736-1936.* Oxford University Press: Oxford.

Birch, J.C. et al., 2010. Cost-effectiveness of dryland forest restoration evaluated by spatial analysis of ecosystem services, *Proceedings of the National Academy of Sciences*, **107**(50), pp. 21925-30.

Bird, K. & Manning, C., 2003. Economic reform, labour markets and poverty: the Indonesian experience, in K. Sharma (ed.), *Trade policy, growth and poverty in Asian developing countries,* Routledge: London.

Birner, R. & Mappatoba, M., 2003. Community agreements on conservation in Lore Lindu, Sulawesi (Indonesia), *Policy Matters*, **September 03**(12), pp. 254-63.

Blaikie, P. & Brookfield, H.(eds), 1987. *Land degradation and society.* Methuen: London.

Bolwig, S. et al., 2010. Integrating poverty and environmental concerns into value-chain analysis: a conceptual framework, *Development Policy Review*, **28**(2), pp. 173-94.

Bonacich, P., 1972. Factoring and weighting approaches to status scores and clique identification, *Journal of Mathematical Sociology*, **2**(1), pp. 113-20.

Borgatti, S. & Halgin, D., 2011. On network theory, *Organization Science*, **22**(5), pp. 1168-81.

Borgatti, S. & Li, X., 2009. On social network analysis in a supply chain context, *Journal of Supply Chain Management*, **Spring**, pp. 1-17.

Borgatti, S.P. & Everett, M.G., 1992. Notions of position in social network analysis, *Sociological Methodology*, **22**, pp. 1-35.

Borgerhoff Mulder, M. & Coppolillo, P., 2005. *Conservation.* Princeton University Press: Princeton.

Borrus, M., Ernst, D. & Haggard, S., 2000. Introduction: cross-border production networks and the industrial integration of the Asia-Pacific region, in M. Borrus, D. Ernst & S. Haggard (eds.), *International production networks in Asia: rivalry or riches?* Routledge: London.

Bourchier, D. & Hadiz, V.R., 2003. *Indonesian politics and society : a reader*. RoutledgeCurzon: London.

Bourdieu, P., 2005. *The social structures of the economy*. Translated from French by C. Turner, 2005. Polity Press: Cambridge.

Boyd, W., Prudham, W.S. & Schurman, R.A., 2001. Industrial dynamics and the problem of nature, *Society & Natural Resources*, **14**(7), pp. 555-70.

BPS (2013) Export by commodity and country of destination 1993-2013 [computer file].

Braun, B., 2006. Towards a new earth and a new humanity: nature, ontology, politics, in N. Castree & D. Gregory (eds.), *David Harvey: a critical reader,* Blackwell Publishing: Oxford.

Brickford, D., Supriatna, J., Andayani, N., Iskandar, D., Evans, B.J., Brown, R.M., Townsend, T., Umilaela, Azhari, D. & McGuire, J., 2008. Indonesia's protected areas need more protection: suggestions from island examples, in N. Sodhi, G. Acciaioli, et al. (eds.), *Biodiversity and human livelihoods in protected areas: case studies from the Malay Archipelago,* Cambridge University Press: Cambridge.

Bridge, G., 2009. Material worlds: natural resources, resource geography and the material economy, *Geography Compass*, **3**(3), pp. 1217-44.

Bridge, G. & Wood, A., 2010. Less is more: spectres of scarcity and the politics of resource access in the upstream oil sector, *Geoforum*, **41**(4), pp. 565-76.

Brock, T., 1968. Implications of commodity theory for value change, in A. Greenwald, T. Brock & T. Ostrom (eds.), *Psychological foundations of attitudes,* Academic Press Inc: New York.

Brockington, D., Duffy, R. & Igoe, J., 2008. *Nature unbound: conservation, capitalism and the future of protected areas*. Earthscan/James & James: London.

Browder, J.O., 1992. The limits of extractivism, *BioScience*, pp. 174-82.

Brown, T.H., 2006. Sustaining economic growth, rural livelihoods, and environmental benefits: strategic options for forest assistance in Indonesia. The World Bank: Washington DC.

Bryant, R.L., 1997. *The political ecology of forestry in Burma*. Hurst & Company: London.

Bunker, S.G. & Ciccantell, P.S., 2005. Matter, space, time, and technology: how local process drives global systems, in P.S. Ciccantell, D.A. Smith & G. Seidman (eds.), *Nature, Raw Materials, and Political Economy (Research in Rural Sociology and Development, Volume 10),* Emerald Group Publishing Limited: Bingley.

Burkard, G., 2007. Cocoa boom, rice subsistence and the emergence of exclusionary labor institutions in Central Sulawesi, Indonesia: some conclusions from Sintuwu. *STORMA Discussion Paper Series.* **(23).** Georg-August-Universität Göttingen: Büsgenweg.

Burnett, N., 2007, Critical Realism: the required philosophical compass for inclusion? In *Australian Association of Research in Education: Research Impacts: Proving or improving? 25th-29th November, 2007,* Australian Association of Research in Education (AARE), Fremantle, Western Australia.

Burt, R.S., 1976. Positions in networks, *Social forces***, 55**(1), pp. 93-122.

– 1977. Power in a social topology, *Social Science Research***, 6**(1), pp. 1-83.

Byrne, J., Glover, L. & Alrøe, H.F., 2006. Globalization and sustainable development: a political ecology strategy to realize ecological justice, in N. Halberg, H.F. Alrøe, et al. (eds.), *Global development of organic agriculture: challenges and prospects,* CABI Publishing: Cambridge, MA.

Cahyafitri R., 2014. Constitutional court upholds ore export ban. The Jakarta Post, [online] December 4. Available at: <http://www.thejakartapost.com/news/2014/12/04/constitutional-court-upholds-ore-export-ban.html>. [Accessed on December 16, 2014].

Cao, X. & Hansen, E.N., 2006. Innovation in China's furniture industry, *Forest Products Journal*, **56**(11/12), pp. 33-42.

Castelfranchi, C., Marzo, F. & Falcone, R., 2009, Trust and relational capital In *Social networks and multi-agent systems symposium (SNAMAS-09),* The Society for the Study of Artificial Intelligence and the Simulation of Behaviour, Edinburgh, Scotland.

Castree, N., 1995. The nature of produced nature: materiality and knowledge construction in Marxism, *Antipode*, **27**(1), pp. 12-48.

Castree, N. & MacMillan, T., 2001. Dissolving dualisms: actor-networks and the reimagination of nature, in N. Castree & B. Braun (eds.), *Social nature: theory, practice, and politics,* Blackwell Publishing: Oxford.

Cavendish, W., 2000. Empirical regularities in the poverty-environment relationship of rural households: evidence from Zimbabwe, *World Development*, **28**(11), pp. 1979-2003.

Chambers, R. & Conway, G., 1991. Sustainable rural livelihoods. *IDS Discussion Paper*. **(296).** Institute of Development Studies: Brighton, UK.

Chao, S., 2012. *Forest peoples: numbers across the world*. Forest Peoples Programme: Moreton-in-Marsh.

Chape, S. et al., 2005. Measuring the extent and effectiveness of protected areas as an indicator for meeting global biodiversity targets, *Philosophical Transactions of the Royal Society B: Biological Sciences*, **360**(1454), pp. 443-55.

Chowdhury, S., Negassa, A. & Torero, M., 2005. Market institutions: enhancing the value of rural-urban links. International Food Policy Research Institute: Washington.

Cialdini, R., 2009. *Influence: science and practice*. 5th ed. Perason: Boston.

Cocks, M.L. et al., 2008. 'Rich man poor man' — inter-household and community factors influencing the use of wild plant resources amongst rural households in South Africa, *International Journal of Sustainable Development & World Ecology*, **15**(3), pp. 198-210.

Coe, N.M. & Hess, M., 2006, Global production networks: debates and challenges In *GPERG workshop, University of Manchester,* .

Coe, N.M., Dicken, P. & Hess, M., 2008a. Global production networks: realizing the potential, *Journal of Economic Geography*, **8**(3), pp. 271-5.

– 2008b. Introduction: global production networks — debates and challenges, *Journal of Economic Geography*, **8**(3), pp. 267-9.

Cohen, R.B. et al.(eds), 1979. *The multinational corporation: A radical approach—Papers by Stephen Herbert Hymer*. Cambridge University Press: Cambridge.

Colchester, M., Contreras-Hermosilla, A., Del Gatto, F., Dempsey, J., Lescuyer, G., Obidzinski, K., Pommier, D., Richards, M., Sembiring, S., Tacconi, L., Vargas Rios, M.T. & Wells, A., 2006. Justice in the forest: rural livelihoods and forest law enforcement. *Forest Perspectives*. **(3).** Center for International Forestry Research: Bogor.

Coleman, H. & Hann, M.A., 2008. *Patterns of culture: the textiles of Bali and Nusa Tenggara*. University of Leeds: Leeds.

Coles, C., 2011. Going for win-win- upgrading through vertical coordination, in *Markets and rural poverty,* Earthscan: London.

Coles, C. & Mitchell, J., 2011. Gender and agricultural value chains. *ESA Working Paper*. **(11-05).** FAO: Rome.

Cook, I. & Crang, P., 1996. The world on a plate culinary culture, displacement and geographical knowledges, *Journal of material culture***, 1**(2), pp. 131-53.

Cook, K.S. & Yamagishi, T., 1992. Power in exchange networks: a power-dependence formulation, *Social Networks***, 14**(3), pp. 245-65.

Cook, K.S., Hardin, R. & Levi, M., 2005. *Cooperation without trust?* Russell Sage Foundation: New York.

Cook, K.S. et al., 1983. The distribution of power in exchange networks: theory and experimental results, *American Journal of Sociology***, 89**(2), pp. 275-305.

Corbera, E. & Brown, K., 2010. Offsetting benefits? Analyzing access to forest carbon, *Environment and Planning A***, 42**(7), pp. 1739-61.

Creswell, J., 2009. *Research design: qualitative, quantitative, and mixed methods approaches*. 3rd ed. Sage Publications: Thousand Oaks.

Customs foils attempts, 2013. The Jakarta Post, [online] September 19. Available at: <http://www.thejakartapost.com/news/2013/09/19/customs-foils-attempts-smuggle-rattan.html>. [Accessed on September 20, 2013].

Dahl, R.A., 1957. The concept of power, *Behavioral science***, 2**(3), pp. 201-15.

Davidson D., 2013. Police foil attempt to smuggle rattan worth RM48,000. New Straits Times, [online] January 16. Available at: <http://www.nst.com.my/latest/police-foil-attempt-to-smuggle-rattan-worth-rm48-000-1.202462>. [Accessed on June 4, 2013].

Decancq, K. & Lugo, M.A., 2013. Weights in multidimensional indices of well-being: an overview, *Econometric Reviews***, 32**(1), pp. 7-34.

Denzin, N., 1970. *The research act*. Aldine: Chicago.

Departemen Kehutanan, 2000. Study on discrepancy forest product trade statistic in Indonesia. *Booklet Kehutanan*. **(2003).** Departemen Kehutanan: Jakarta.

Departemen Kehutanan Republik Indonesia, 2007. *Buku informasi 50 taman nasional di Indonesia*. Direktorat Jendral Perlindungan Hutan dan Konservasi Alam and Departemen Kehutanan Republik Indonesia: Bogor.

Departmen Kehutanan, 2008. Statistik kehutanan Indonesia (Forestry statistics of Indonesia) 2007. Departemen Kehutanan: Jakarta.

Desmarais, A.A., 2002. Peasants speak - the Vía Campesina: consolidating an international peasant and farm movement, *The Journal of Peasant Studies*, **29**(2), pp. 91-124.

Dicken, P., 2005. *Tangled webs: transnational production networks and regional integration*. Economic Geography, Faculty of Geography, Philipps-University: Marburg.

Doel, M., 2006. Dialectical materialism: stranger than fiction, in N. Castree & D. Gregory (eds.), *David Harvey: a critical reader,* Blackwell Publishing: Oxford.

Domestic rattan industry complains over gloomy prospect, 2010. The Jakarta Post, [online] July 26. Available at: <http://www.thejakartapost.com/news/2010/07/26/domestic-rattan-industry-complains-over-gloomy-prospect.html>. [Accessed on August 10, 2013].

Dove, M.R., 1993. A revisionist view of tropical deforestation and development, *Environmental Conservation*, **20**(1), pp. 17-24.

Dransfield, J., 2002. General introduction to rattan - the biological background to exploitation and the history of rattan research, in J. Dransfield, F.O. Tesoro & N. Manokaran (eds.), *Rattan: current research issues and prospects for conservation and sustainable development,* FAO: Rome.

Dransfield, J. & Manokaran, N., 1993. *Plant resources of South-East Asia: rattans*. Pudoc Scientific Publishers: Wageningen.

Dudley, N.(ed)2009. *Guidelines for applying protected area management categories*. IUCN: Gland.

Dudley, R.G., 2004. Modeling the effects of a log export ban in Indonesia, *System Dynamics Review*, **20**(2), pp. 99-116.

Duffy, R., 2010. *Nature crime: how we're getting conservation wrong.* Yale University Press: New Haven.

Dwiprabowo, H., Irawanti, S., Supriyadi, R. & Nasendi, B.D., 1998. Rattan in Java, Indonesia : a case study of the production-to-consumption systems. *INBAR Wroking Paper.* **(13).** Forest Products and Forestry Socio-economic Research and Development Centre: Bogor.

EDJ, 2009. Revisi aturan ekpor rotan harus segera terbit. Kompas, [online] May 28. Available at: <http://bisniskeuangan.kompas.com/read/2009/05/28/15410751/Revisi.Aturan.Ekpor.Rotan.Harus.Segera.Terbit>. [Accessed on November 23, 2013].

Edwards, G., 2010. Mixed-method approaches to social network analysis. *Mixed-Method Approaches to Social Network Analysis* . **(NCRM/015).** NCRM: London.

Effendi, R., Sukanda & Rostiwati, T., 2013, The imbalanced distribution of added value in value chain of rattan trade In *Value chains of furniture, other forest products and ecosystem services. 14 February, 2013,* CIFOR, Bogor.

EIA, 2013. *First class connections: log smuggling, illegal logging, and corruption in Mozambique*. Environmental Investigation Agency: s.l.

Elsbach, K.D., 1994. Managing organizational legitimacy in the California cattle industry: the construction and effectiveness of verbal accounts, *Administrative science quarterly*, pp. 57-88.

Elster, J., 1983. *Sour grapes: studies in the subversion of rationality.* Cambridge University Press: Cambridge.

Emerson, R.M., 1962. Power-dependence relations, *American sociological review*, pp. 31-41.

Escobar, A., 1996. Constructing nature, in R. Peet & M. Watts (eds.), *Liberation ecologies: environment, development, social movements,* Routledge: London.

Ezberger, C. & Kelle, U., 2003. Making inferences in mixed methods: the rules of integration, in A. Tashakkori & C. Teddlie (eds.), *The SAGE handbook of mixed methods in social and behavioral sciences,* SAGE Publications: London.

Fadi, 2013. Rattan smuggle attempt foiled in Batam. The Jakarta Post, [online] February 26. Available at: <http://www.thejakartapost.com/news/2013/02/26/rattan-smuggle-attempt-foiled-batam.html>. [Accessed on February 28, 2013].

Fahmi, F.Z. et al., 2014. Extended urbanization in small and medium-sized cities: The case of Cirebon, Indonesia, *Habitat International***, 42**, pp. 1-10.

FAO, 1998. FRA 2000 Terms and definitions. *FRA Working Paper*. FAO Forestry Department: Rome.

– 1999. Towards a harmonised definition of non-wood forest products, *Unasylva***, 198**(50).

– 2009. *State of the World's Forests 2009*. Food and Agriculture Organization of the United Nations: Rome.

Faße, A., Grote, U. & Winter, E., 2009. Value chain analysis: methodologies in the context of environment and trade research. *Discussion Paper*. **(429).** Gottfried Leibniz University of Hannover: Hannover.

Faust, H., Maertens, M., Weber, R., Nuryartono, N., van Rheenen, T. & Birner, R., 2003. *Does migration lead to destabilization of forest margin areas? Evidence from an interdisciplinary field study in Central Sulawesi. Göttingen, Bogor*. s.l.

Faust, K. & Wasserman, S., 1994. *Social network analysis: a network approach*. Cambridge University Press: Cambridge.

Ferraro, P.J., 2002. The local costs of establishing protected areas in low-income nations: Ranomafana National Park, Madagascar, *Ecological Economics*, pp. 261-75.

Ferraro, P.J. et al., 2011. Forest figures: ecosystem services valuation and policy evaluation in developing countries, *Review of Environmental Economics and Policy*, **6**(1), pp. 20-44.

Flyvbjerg, B., 2011. Case study, in N.K. Denzin & Y.S. Lincoln (eds.), *The SAGE handbook of qualitative research,* SAGE Publications: Thousand Oaks, California.

Forsyth, T., 2003. *Critical political ecology*. Routledge: London.

Foucault, M., 1980. *Power/knowledge: selected interviews and other writings, 1972-1977*. Gordon, C. ed. Pantheon Books: New York.

Fraser, N., 2009. *Scales of justice: reimagining political space in a globalizing world*. Columbia University Press: New York.

Freeman, L.C., 1979. Centrality in social networks conceptual clarification, *Social Networks*, **1 (1978/79)**, pp. 215-39.

– 2004. *The development of social network analysis: a study in the sociology of science*. Empirical Press: Vancouver, BC.

Freudenburg, W.R., Frickel, S. & Gramling, R., 1995. Beyond the nature society divide - learning to think about a mountain, *Sociological Forum*, **10**(3), pp. 361-92.

Gaveau, D.L.A. et al., 2012. Examining protected area effectiveness in Sumatra: importance of regulations governing unprotected lands, *Conservation Letters*, **5**(2), pp. 142-8.

Gereffi, G., 1994. Capitalism, development, and global commodity chains, in L. Sklair (ed.), *Capitalism and development,* Routledge: London.

– 1999. International trade and industrial upgrading in the apparel commodity chain, *Journal of International Economics*, **48**(1), pp. 37-70.

Gereffi, G., Humphrey, J. & Sturgeon, T.J., 2005. The governance of global value chains, *Review of International Political Economy*, **12**(1), pp. 78-104.

Gereffi, G. et al., 2001. Introduction: globalisation, value chains and development, *IDS Bulletin*, **32.2**.

Ghani, A., 1996, Production and reproduction of property as a bundle of powers: Afghanistan 1774–1901 In *Draft discussion paper in Agrarian Studies Program (as cited in Ribot and Peluso 2003),* Yale University, New Haven.

Ginger, C. et al., 2012. Access to natural resources on private property: factors beyond right of entry, *Society & Natural Resources*, **25**(7), pp. 700-15.

Godoy, R.A. & Feaw, T.C., 1989. The profitability of smallholder rattan cultivation in Southern Borneo, Indonesia, *Human Ecology*, **17**(3), pp. 347-63.

GoI, 1979. *Larangan ekspor rotan alasan dari seluruh wilayah Indonesia.* [The prohibition of export of rattan from all of Indonesia]. Menteri Perdagangan dan Koperasi. 492/Kp/VII/79.

GoI, 1992a. *Ketentuan ekspor produk rotan.* [Determination of rattan export]. Menteri Perdagangan. 179/Kp/VI/92. Jakarta.

GoI, 1992b. *Penetapan besarnya tarif dan tata cara pembayaran serta penyetoran pajak ekspor dan atau pajak ekspor tambahan.* [Determination of the amount and manner of payment rates as well as export and remittance of tax or additional export tax]. Menteri Keuangan Republik Indonesia. 534/KMK.013/1992. Jakarta.

GoI, 1998. *Ketentuan ekspor rotan bulat.* [Determination on the export of round rattans]. Kementrian Perindustrian dan Perdagangan. 440/MPP/Kep/9/1998. Jakarta.

GoI, 2004. *Pengaturan ekspor rotan.* [Ruling on the export of rattan]. Mentri Perindustrian dan Perdagangan. 355/Kpts/Men/2004. Jakarta.

GoI, 2005. *Ketentuan ekspor rotan.* [Determination of rattan export]. Menteri Perdagangan Republik Indonesia. 12/M-DAG/PER/6/2005. Jakarta.

GoI, 2009a. *Ketentuan ekspor rotan* . [Determination of rattan export]. Menteri Perdagangan Republik Indonesia. 33/M-DAG/PER/7/2009 . Jakarta.

GoI, 2009b. *Ketentuan ekspor rotan*. [Determination of rattan export]. Menteri Perdagangan Republik Indonesia. 36/M-DAG/PER/8/2009. Jakarta.

GoI, 2012. *Perubahan atas peraturan Menteri Perdaganan Nomor 12/M-DAG/PER/ 3/2012 tentang penetapan harga patokan hasil hutan untuk penghitungan provisi sumber daya alam*. 22/M-DAG/PER/4/2012. Jakarta.

Goldman, M. & Schurman, R.A., 2000. Closing the "great divide": new social theory on society and nature, *Annual Review of Sociology*, pp. 563-84.

Goodland, R. & Daly, H., 1996. If tropical log export bans are so perverse, why are there so many? *Ecological Economics*, **18**(3), pp. 189-96.

Göhler, G., 2009. 'Power to' and 'power over', in S.R. Clegg & M. Haugaard (eds.), *The SAGE handbook of power,* Sage Publications Ltd: London.

Granovetter, M., 1973. The strength of weak ties, *American Journal of Sociology*, **78**(6), pp. 1360-80.

– 1982. The strength of weak ties, in N. Lin & P. Marsden (eds.), *Social structure and network analysis,* SAGE Publications: Beverly Hills.

– 1985. Economic action and social structure: the problem of embeddedness, *American Journal of Sociology*, **91**(3), pp. 481-510.

– 1992. Problems of explanation in economic sociology, in N. Nohria & R. Eccles (eds.), *Networks and organizations: structure, form, and action,* Harvard Business School Press: Boston.

– 2005. The impact of social structure on economic outcomes, *The Journal of Economic Perspectives*, **19**(1), pp. 33-50.

Gray, D.E., 2004. *Doing research in the real world.* SAGE Publications Ltd: London.

Greene, J.C., 2006. Toward a methodology of mixed methods social inquiry, *Research in the Schools*, **13**(1), pp. 93-8.

Greene, J.C., Caracelli, V.J. & Graham, W.F., 1989. Toward a Conceptual Framework for Mixed-Method Evaluation Designs, *Educational Evaluation and Policy Analysis*, **11**(3), pp. 255-74.

Hall, D., Hirsch, P. & Li, T.M., 2011. *Powers of exclusion*. University of Hawai'i Press: Honolulu.

Hammersley, M., 2008. Troubles with triangulation, in M.M. Bergman (ed.), *Advances in mixed methods research,* SAGE Publications: London.

Hanifah A., 2010. Roundup: Indonesia's natural rattan industry hopes for revival after downturn. Xinhua General News Service, [online] June 16. Available at: <http://www.lexisnexis.com/uk/nexis/delivery/PrintDoc.do?jobHandle…6%3A409363099%2Fformatted_doc&fromCartFullDoc=false&fileSize=5000>. [Accessed on May 15, 2013].

Hanneman, R. & Riddle, M., 2005. *Indroduction to social network methods*. s.l.

Harman, C., 2009. *Zombie capitalism: global crisis and the relevance of Marx*. Bookmarks Publications: London.

Hart, S.L., 1995. A natural-resource-based view of the firm, *Academy of management review*, **20**(4), pp. 986-1014.

He, J., 2010. Globalised forest-products: commodification of the matsutake mushroom in Tibetan villages, Yunnan, Southwest China, *International Forestry Review*, **12**(1), pp. 27-37.

Henderson, J. et al., 2002. Global production networks and the analysis of economic development, *Review of International Political Economy*, **9**(3), pp. 436-64.

Henley, D., 2007. Natural resource management: historical lessons from Indonesia, *Human Ecology*, **36**(2), pp. 273-90.

Henley, D. & Davidson, J.S., 2008. In the name of adat: regional perspectives on reform, tradition, and democracy in Indonesia, *Modern Asian Studies*, **42**(04), pp. 815-52.

Hess, M., 2004. 'Spatial' relationships? towards a reconceptualization of embeddedness, *Progress in Human Geography*, **28**(2), pp. 165-86.

Hess, M. & Yeung, H.W.-C., 2006. Whither global production networks in economic geography? past, present and future, *Environment and Planning A*, **38**(6).

Hesse-Biber, S.N., 2010. *Mixed methods research: merging theory with practice*. Guilford Press: New York.

Heubach, K. et al., 2011. The economic importance of non-timber forest products (NTFPs) for livelihood maintenance of rural west African communities: A case study from northern Benin, *Ecological Economics*, **70**(11), pp. 1991-2001.

Hirschberger, P., 2011. Global rattan trade: pressure on forest resources. WWF Austria: Vienna.

Hobson, J.A., 1897. *The evolution of modern capitalism: a study of machine production*. Walter Scott Ltd.: New York.

Hoesan J, 2013. Tata niaga ekspor rotan. (Personal communication, April 27).

Hollstein, B., 2011. Qualitative approaches, in J. Scott & P.J. Carrington (eds.), *The SAGE handbook of social network analysis,* SAGE Publications: London.

Homma, A.K.O., Nepstad, D.C. & Schwartzman, S., 1992. The dynamics of extraction in Amazonia: a historical perspective, *Advances in Economic Botany*, **9**, pp. 23-31.

Hopkins, T. & Wallerstein, I., 1986. Commodity chains in the world-economy prior to 1800, *Review*, **10**(1), pp. 157-70.

Hu, Y., n.d. Efficient and high quality force-directed graph drawing. Wolfram Research Inc: Champaign, IL.

Hubbell, S.P. & Foster, R.B., 1986. Commonness and rarity in a neotropical forest: implications for tropical tree conservation, in M.E. Soulé (ed.), *Conservation biology: the science of scarcity and diversity,* Sinauer Associates: Sunderland, Massachusetts.

Hudson, R., 2008. Cultural political economy meets global production networks: a productive meeting? *Journal of Economic Geography***, 8**(3), pp. 421-40.

– 2011. Critical political economy and material transformation, *New Political Economy*, pp. 1-25.

Humphrey, J. & Schmitz, H., 2002. How does insertion in global value chains affect upgrading in industrial clusters? *Regional Studies***, 36**(9), pp. 1017-27.

Hyman, E.L., 1996. Technology and the organisation of production, processing and marketing of non-timber forest products, in M. Ruiz Pérez & J.E.M. Arnold (eds.), *Current issues in non-timber forest products research,* CIFOR: Bogor, Indonesia.

Iskandar, 2012. Government Admits Smuggling Marak Rattan. Citra Indonesia, [online] October 30. Available at: <http://citraindonesia.com/pemerintah-akui-marak-penyelundupan-rotan/?lang=en>. [Accessed on June 19, 2013].

Islam, N., 1981. Economic interdependence between rich and poor nations, *Third World Quarterly***, 3**(2), pp. 230-50.

ITTO, 2007. Rattan raw material trade. *Development of sustainable rattan production and utilization through participation of rattan smallholders and industry in Indonesia* . **(PD 108/01 Rev 3(I)).** ITTO: Jakarta.

– 2011. ITTO Potential - source. s.l.

ITTO-MOF, 2008. Indonesia rattan trade. *Sustainable rattan development and utilisation*. **(PD 108/01).** ITTO-Ministry of Forestry: Jakarta.

IUCN & UNEP, 2012. *The world database on protected areas (WDPA)*. UNEP-WCMC: Cambridge, UK.

Iversen, V. et al., 2006. High value forests, hidden economies and elite capture: evidence from forest user groups in Nepal's Terai, *Ecological Economics*, **58**(1), pp. 93-107.

Jensen, A., 2009. Valuation of non-timber forest products value chains, *Forest Policy and Economics*, **11**(1), pp. 34-41.

Jick, T.D., 1979. Mixing qualitative and quantitative methods: triangulation in action, *Administrative Science Quarterly*, **24**(4), pp. 602-11.

Jong, 2015. Jokowi's defense of former industry criticized. The Jakarta Post, [online] April 18. Available at: <http://www.thejakartapost.com/news/2015/04/18/jokowi-s-defense-former-industry-criticized.html>. [Accessed on April 18, 2015].

Juhrbandt J. Economic valuation of land use change - a case study on rainforest conversion and agroforestry intensification in Central Sulawesi, Indonesia, in *Doctoral Thesis* (2010).

Kanchanapa C. A study on test performances of rattan helmet for protection of head injury, in *Masters Thesis* (2003).

Kaplinsky, R., 2000a. Globalisation and unequalisation: what can be learned from value chain analysis? *Journal of Development Studies*, **37**(2), pp. 117-46.

– 2000b. Spreading the gains from globalisation: what can be learned from value chain analysis? *IDS Working Paper*. **(110).** Institute of Development Studies: s.l.

Kaplinsky, R. & Morris, M., 2001. A handbook for value chain research. IDRC: Ottawa.

Kar, S.P. & Jacobson, M.G., 2012. NTFP income contribution to household economy and related socio-economic factors: lessons from Bangladesh, *Forest Policy and Economics*, **14**(1), pp. 136-42.

Keane, J., 2008. A 'new' approach to global value chain analysis. *Working Paper 293*. Overseas Development Institute: London.

Kementerian Kehutanan, 2011. *Data dan informasi pemanfaatan hutan tahun 2011.* Kementerian Kehutanan: Jakarta.

Kementrian Perindustrian, 2012. Laporan konsolidasi program dirinci menurit kegiatan. Kementrian Perindustrian: Jakarta.

Kim, J., 2010. Recent trends in export restrictions. *OECD Trade Policy Working Papers*. **(101).** OECD Publishing: s.l.

Kishor, N., Mani, M. & Constantino, L., 2004. Economic and environmental benefits of eliminating log export bans the case of Costa Rica, *The World Economy***, 27**(4), pp. 609-24.

Koch, J., 2008. Perspectives on access to and management of natural resources . *DIIS Working Paper.* **(2008/8).** Danish Institute for International Studies, DIIS : Copenhagen.

Korinek, J. & Jeonghoi, K., 2011. Export restrictions on strategic raw materials and their impact on trade and global supply, *Journal of World Trade***, 45**(2), pp. 255-75.

Kosara R, Ziemkiewicz C 2014. Parallel Sets v2.1 [available at http://eagereyes.org/parallel-sets].

Kuncoro, M., 2011, Grease money and regulatory constraints to manufacturing industry: the case of Indonesia In *KAPA-ASPA Joint International Conference. October 28-29,* KAPA-ASPA Joint International Conference. October 28-29, Seoul.

Larson, A.M. & Ribot, J., 2007. The poverty of forestry policy: double standards on an uneven playing field, *Sustainability Science***, 2**(2), pp. 189-204.

Latour, B., 1999. On recalling ANT, in J. Hassard & J. Law (eds.), *Actor network theory and after,* Blackwell Publishers: Oxford.

– 2005. *Reassembling the social: an introduction to Actor-Network-Theory.* Oxford University Press: Oxford.

Law, J., 1999. After ANT: complexity, naming and topology, in J. Hassard & J. Law (eds.), *Actor network theory and after,* Blackwell Publishers: Oxford.

Lawrence, A., 2003. No Forest Without Timber? *The International Forestry Review*, **5**(2), pp. 87-96.

Leach, M., 1994. *Rainforest relations.* Edinburgh University Press: Edinburgh.

Leach, M., Mearns, R. & Scoones, I., 1999. Environmental entitlements: dynamics and institutions in community-based natural resource management, *World Development*, **27**(2), pp. 225-47.

Lele, S. et al., 2010. Beyond exclusion: alternative approaches to biodiversity conservation in the developing tropics, *Current Opinion in Environmental Sustainability*, **2**(2), pp. 94–100.

Levy, D.L., 2008. Political contestation in global production networks, *The Academy of Management Review*, **33**(4), pp. 943-63.

Li, R.-S. et al., 2007. Rattan sector in Hainan Island, China: a case study, *Journal of Forestry Research*, **18**(2), pp. 153-6.

Li, T.M., 1999. Compromising power: development, culture, and rule in Indonesia, *Cultural Anthropology*, **14**(3), pp. 295-322.

– 2004. Environment, indigeneity and transnationalism, in R. Peet & M. Watts (eds.), *Liberation ecologies: environment, development, social movements,* Routledge: London.

– 2007. *The will to improve: governmentality, development, and the practice of politics.* Duke University Press: London.

– 2008. Contested commodifications: struggles over nature in a national park, in J. Nevins & N.L. Peluso (eds.), *Taking Southeast Asia to market,* Cornell University Press: Ithica.

Lihra, T. & Graf, R., 2007. Multi-channel communication and consumer choice in the household furniture buying process, *Direct Marketing: An International Journal*, **1**(3), pp. 146-60.

Lin, N., 1999. Building a network theory of social capital, *Connections*, **22**(1), pp. 28-51.

– 2001. Building a network theory of social capital, in N. Lin, K.S. Cook & R.S. Burt (eds.), *Social capital: theory and research,* AldineTransaction: New Brunswick, New Jersey.

Lindsay, H., 1989. The Indonesian Log Export Ban: An Estimation of Foregone Export Earnings, *Bulletin of Indonesian Economic Studies*, **25**(2), pp. 111-23.

Lukes, S., 2005. *Power: a radical view.* 2nd ed. Palgrave Macmillan: London.

Lund, C., 2011. Property and citizenship: conceptually connecting land rights and belonging in Africa, *Africa Spectrum*, **46**(3), pp. 71-5.

Lund, J.F. & Saito-Jensen, M., 2013. Revisiting the issue of elite capture of participatory initiatives, *World Development*, **46**, pp. 104-12.

Lynn, M., 1991. Scarcity effects on value: a quantitative review of the commodity theory literature, *Psychology and Marketing*, **8**(1), pp. 43-57.

Mackie, J. & Sjahrir, 1989. Survey of recent developments, *Bulletin of Indonesian Economic Studies*, **25**(3), pp. 3-34.

Maertens, M., Zeller, M. & Birner, 2002. Explaining agricultural land use in villages surrounding the Lore Lindu National Park in Central Sulawesi, Indonesia . *STORMA Discussion Paper Series.* **(4).** Research Project on Stability of Rain Forest Margins (STORMA) : s.l.

Marcone, M.F., 2005. Characterization of the edible bird's nest the "Caviar of the East", *Food Research International*, **38**(10), pp. 1125-34.

Markovsky, B., Willer, D. & Patton, T., 1988. Power relations in exchange networks, *American Sociological Review*, pp. 220-36.

Marsden, P.V., 1983. Restricted access in networks and models of power, *American Journal of Sociology*, pp. 686-717.

Marshall, E., Newton, A.C. & Schreckenberg, K., 2003. Commercialisation of non-timber forest products: first steps in analysing the factors influencing success, *International Forestry Review*, **5**(2), pp. 128-37.

Marx, K., 1867. *Capital: A contribution to the critique of political economy*. Engels, F. ed. Translated from German by S. Moore & E. Aveling, 1887. Progress Publishers: Moscow.

Matteucci, M., 1976. *History of the Motor Car*. Octopus Books: Boston.

McCall, M.D., 2011. Deep drop in retail trade employment during the 2007-09 recession, *Monthly Labor Review*, p. 45.

McCarthy, J., 2001. *Decentralisation, local communities and forest management in Barito Selatan District, Central Kalimantan*. Center for International Forestry Research: Bogor.

McCarthy, J.F., 2006. *The fourth circle*. Stanford University Press: Stanford.

Mehring, M. & Stoll-Kleemann, S., 2011. How effective is the buffer zone? linking institutional processes with satellite images from a case study in the Lore Lindu forest biosphere reserve, Indonesia, *Ecology and Society*, **16**(4), p. 3.

Meijaard, E., Achdiawan, R., Wan, M. & Taber, A., 2014. Rattan: the decline of a once-important non-timber forest product in Indonesia. *CIFOR Occasional Paper*. **(101).** CIFOR: s.l.

Mertz, O. et al., 2012. The last swiddens of Sarawak, Malaysia, *Human Ecology*, **41**(1), pp. 109-18.

Miller, D., n.d. Materiality: an introduction. [online] Available at: <http://www.ucl.ac.uk/anthropology/people/academic_staff/d_miller/mil-8>. [Accessed on October 21, 2012].

– 1998. Why some things matter, in D. Miller (ed.), *Material cultures: why some things matter,* Routledge: London.

Ministry of Finance, 2014. Custom office of Tanjung Priok thwarted rattan smuggling valued more than IDR1 billion. [online] Available at: <http://www.kemenkeu.go.id/en/print/42412>. [Accessed on October 7, 2014].

Ministry of Finance, 2014. Customs Office of Tarakan thwarted rattan smuggling to Malaysia. [online] Available at: <http://www.kemenkeu.go.id/en/print/42217>. [Accessed on October 7, 2014].

Ministry of Finance, 2014. Once again, customs office thwarted rattan smuggling valued IDR5 billion. [online] Available at: <http://www.kemenkeu.go.id/en/print/42505>. [Accessed on October 7, 2014].

Mishra, H., 1994. South and Southeast Asia, in J. McNeely, J. Harrison & P. Dingwall (eds.), *Protectiong nature: Regional reviews of protected areas,* IUCN: Gland.

Morrow, J.L., Hansen, M. & Perason, A., 2004. The cognitive and affective antecedents of general trust within cooperative organizations, *Journal of Managerial Issues*, **XVI**(1), pp. 8-64.

Muryawan, M., 2012, UN COMTRADE: understanding trade data In *United Nations Conference on Trade and Development,* Geneva.

Myers, R. & Ardiansyah, F., 2014. Who holds power in land-use decisions? *CIFOR InfoBrief.* **(100).** CIFOR: Bogor.

Myers, R. & Muhajir, M., [in press]. Searching for justice: rights vs 'benefits' in Bukit Baka Bukit Raya National Park, Indonesia, *Conservation & Society*.

Ndoye, O., Ruíz-Pérez, M. & Eyebe, A., 1998. The markets of non-timber forest products in the humid forest zone of Cameroon. Rural Development Forestry Network: London.

Neumann, R., 2002. *Imposing wilderness*. University of California Press: London.

– 2005. *Making political ecology*. Hodder Arnold: New York.

Neumann, R.P. & Hirsch, E., 2000. *Commercialisation of non-timber forest products: review and analysis of research*. Center for International Forestry Research: Bogor.

Newbert, S.L., 2008. Value, rareness, competitive advantage, and performance: a conceptual-level empirical investigation of the resource-based view of the firm, *Strategic management journal*, **29**(7), pp. 745-68.

Newton, A. et al., 2006. Use of a Bayesian belief network to predict the impacts of commercializing non-timber forest products on livelihoods, *Ecology and Society*, **11**(2).

OECD, 2010. *Trade and economic effects of responses to the economic crisis*. OECD: s.l.

Pabuayon, I.M., Rivera, M.N. & Espanto, L.H., 1998. *The Philippine rattan sector: a case study of the production-to-consumption systems*. International Network for Bamboo and Rattan: Beijing.

Panayides, P.M. & Wiedmer, R., 2011. Strategic alliances in container liner shipping, *Research in Transportation Economics*, **32**(1), pp. 25-38.

Parsons, T., 1967. *Sociological theory and modern society*. The Free Press: New York.

Pascual, U. et al., 2010. Exploring the links between equity and efficiency in payments for environmental services: a conceptual approach, *Ecological Economics*, **69**(6), pp. 1237-44.

Pauls, T. & Franz, M., 2013. Trading in the dark - the medicinal plants production network in Uttarakhand, *Singapore Journal of Tropical Geography*, **34**(2), pp. 229-43.

Paumgarten, F. & Shackleton, C.M., 2009. Wealth differentiation in household use and trade in non-timber forest products in South Africa, *Ecological Economics*, **68**(12), pp. 2950-9.

Peck, J., 2005. Economic sociologies in space, *Economic Geography*, **81**(2), pp. 129-75.

Peluso, N.L., 1991. Case study one: rattan industries in East Kalimantan, Indonesia, in J. Campbell (ed.), *Case Studies in Forest-Based Small Scale Enterprises in Asia. Rattan, Matchmaking and Handicrafts,* FAO: Bangkok.

– 1992a. The political ecology of extraction and extractive reserves in East Kalimantan, Indonesia, *Development and Change*, **23**(4), pp. 49-74.

– 1992b. *Rich forests, poor people*. University of California Press: Berkeley.

– 1996. Fruit trees and family trees in an anthropogenic forest: ethics of access, property zones, and environmental change in Indonesia, *Comparative Studies in Society and History*, **38**(3), pp. 510-48.

Peluso, N.L. & Vandergeest, P., 2001. Genealogies of the political forest and customary rights in Indonesia, Malaysia, and Thailand, *The Journal of Asian Studies*, **60**(3), pp. 761-812.

Peppard, J. & Rylander, A., 2006. From value chain to value network: insights for mobile operators, *European Management Journal*, **24**(2-3), pp. 128-41.

Peters, C.M., Gentry, A.H. & Mendelsohn, R., 1989. Valuation of a tropical forest in Peruvian Amazonia, *Nature*, **339**, pp. 655-7.

Pfeffer, J. & Salancik, G., 2003. *The external control of organizations: a resource dependence perspective*. Stanford Business Books: Stanford.

Pisano, D. & Van der Linden, R., 2002. *Charles Lindbergh and the Spirit of St. Louis*. Smithsonian National Air and Space Museum: New York.

Polanyi, K., 2001. *The great transformation*. 2nd [original publication 1944] ed. Beacon Press Books: Boston.

Ponte, S. & Ewert, J., 2009. Which way is "up" in upgrading? Trajectories of change in the value chain for South African wine, *World Development*, **37**(20), pp. 1637-50.

Ponte, S. & Gibbon, P., 2005. Quality standards, conventions and the governance of global value chains, *Economy and Society*, **34**(1), pp. 1-31.

Porter, M., 1985. *Competitive advantage*. Macmillan: London.

Poteete, A.R. & Ribot, J.C., 2011. Repertoires of domination: decentralization as process in Botswana and Senegal, *World Development*, **39**(3), pp. 439-49.

Purnomo, E.P. & Anand, P.B., 2014. The conflict of forest tenure and the emergence of community based forest management in Indonesia, *Jurnal Studi Pemerintahan*, **5**(1).

Putnam, R., 2000. *Bowling alone: the collapse and revival of American community*. Simon & Schuster: New York.

Putnam, R.D., 2007. E pluribus unum: diversity and community in the twenty-first century the 2006 Johan Skytte Prize Lecture, *Scandinavian political studies*, **30**(2), pp. 137-74.

QSR International 2014. NVIVO qualitative data analysis software version 10 for Mac [available at www.qsrinternational.com].

Rattan export limitation harms local industry, 2010. The Jakarta Post, [online] July 15. [Accessed on March 24, 2013].

Raw rattan export ban triggers its smuggling to China, 2012. Republika Online, [online] October 19. Available at: <http://www.republika.co.id/berita/en/jakarta-region-others/12/10/19/mc51cb-raw-rattan-export-ban-triggers-its-smuggling-to-china>. [Accessed on June 19, 2013].

Resosudarmo, B.P. & Yusuf, A.A., 2006. Is the log export ban an efficient instrument for economic development and environmental protection? the case of Indonesia, *Asan Economic Papers*, **5**(2), pp. 75-104.

Ribot, J., 1998. Theorizing access: forest profits along Senegal's charcoal commodity chain, *Development and Change*, **29**, pp. 307-41.

– 2005. Policy and distributional equity in natural resource commodity markets: commodity-chain analysis as a policy tool. *A Research Concept Paper.* World Resources Institute : Washington.

– 2009. Authority over forests: empowerment and subordination in Senegal's democratic decentralization, *Development and Change*, **40**(1), pp. 105-29.

Ribot, J. & Peluso, N.L., 2003. A theory of access, *Rural sociology*, **68**(2), pp. 153-81.

Rongsheng, L., 2015, In *Building consensus around rattan,* International Network for Bamboo and Rattan, Haikou, Hainan, China.

Ruiz Pérez, M. & Byron, N., 1999. A methodology to analyze divergent case studies of non-timber forest products and their development potential, *Forest Science*, **45**(1), pp. 1-14.

Ruiz Pérez, M. et al., 2004. Markets drive the specialization strategies of forest peoples, *Ecology and Society*, **9**(2).

Safitri, M. & Moeliono, T.P., 2010. Hukum agraria dan masyarakat di Indonesia : studi tentang tanah, kekayaan alam, dan ruang di masa kolonial dan desentralisasi. HuMa: Jakarta.

Saha, D. & Sundriyal, R.C., 2012. Utilization of non-timber forest products in humid tropics: implications for management and livelihood, *Forest Policy and Economics*, **14**, pp. 28-40.

Saldaña, J., 2009. *The Coding Manual for Qualitative Researchers*. SAGE: London.

Sangaji, A., 2007. The masyarakat adat movement in Indonesia, in J.S. Davidson & D. Henley (eds.), *The revival of tradition in Indonesian politics: The deployment of adat from colonialism to indigenism,* Routledge: London.

Sasaki, H., 2007. Innovations in swidden-based rattan cultivation by Benuaq-Dayak farmers in East Kalimantan, Indonesia, in M. Cairns (ed.), *Voices from the forest,* Resources for the Future: Washington.

Sastry, C.B., 2001. Rattan in the twenty-first century - an overview, *Unasylva*, **52**(205).

Sayer, J. et al., 2012. Oil palm expansion transforms tropical landscapes and livelihoods, *Global Food Security*, **1**(2), pp. 114-9.

Sayer, R.A., 2000. *Realism and social science*. Sage: London.

Scherr, S.J., White, A. & Kaimowitz, D., 2003. A new agenda for forest conservation and poverty alleviation: making markets work for low-income producers. Forest Trends: Washington, DC.

Schreckenberg, K. & Mitchell, J., 2011. Who runs this place? the external enabling environment for value chain development, in J. Mitchell & C. Coles (eds.), *Markets and rural poverty,* Earthscan: London.

Schultz, M 1985, Body/chassis: a century of progress, *Popular Mechanics,*October, p. 52.

Scott, J., 2000. *Social network analysis: a handbook*. 2nd ed. Sage Publications: London.

Scott, J.C., 1976. *The moral economy of the peasant.* Yale University Press: London.

– 1987. *Weapons of the weak: everyday forms of peasant resistance.* Yale University Press: New Haven.

Scott, R., 2008. *Institutions and organizations.* 3rd ed. SAGE Publications: London.

Sen, A., 1999. *Development as freedom.* Oxford University Press: New York.

Senge, P.M., 1990. *The fifth discipline: the art and practice of the learning organization: first edition.* Doubleday: New York.

Seville, D., Buxton, A. & Vorley, B., 2011. *Under what conditions are value chains effective tools for pro-poor development?* s.l.

Shackleton, C., Delang, C.O., Schakleton, S. & Shanley, P., 2011a. Non-timber forest products: concept and definitions, in S. Shackleton, C. Shackleton & P. Shanley (eds.), *Non-timber forest products in the global context,* Springer: London.

Shackleton, C., Shackleton, S. & Shanley, P., 2011b. Building a holistic picture: an integrative analysis of current and future prospects for non-timber forest products in a changing world, in S. Shackleton, C. Shackleton & P. Shanley (eds.), *Non-timber forest products in the global context,* Springer: London.

Shackleton, C.M. & Shackleton, S.E., 2006. Household wealth status and natural resource use in the Kat River valley, South Africa, *Ecological Economics*, **57**(2), pp. 306-17.

Shackleton, S. et al., 2011. Opportunities for enhancing poor women's socioeconomic empowerment in the value chains of three African non-timber forest products (NTFPs), *International Forestry Review*, **13**(2), pp. 136-51.

Sheil, D. & Wunder, S., 2002. The value of tropical forest to local communities: complications, caveats, and cautions, *Conservation Ecology*, **6**(2).

Siebert, S., 2012. *The nature and culture of rattan.* University of Hawai'i Press: Honolulu.

Siebert, S.F., 2005. The abundance and distribution of rattan over an elevation gradient in Sulawesi, Indonesia, *Forest Ecology and Management*, **210**(1-3), pp. 143-58.

Sikor, T. & Lund, C., 2009. Access and property: a question of power and authority, *Development and Change*, **40**(1), pp. 1–22.

Sikor, T. & Pham, P.T.T., 2005. The dynamics of commoditization in a Vietnamese uplands village, 1980--2000, *Journal of Agrarian Change*, **5**(3), pp. 405-28.

Silalahi, 2011. Industri rotan dijatah proyek kursi & meja sekolah rp 20 triliun. Dedik Finance, [online] December 27. Available at: <http://finance.detik.com/read/2011/12/27/114216/1800209/1036/industri-rotan-dijatah-proyek-kursi-meja-sekolah-rp-20-triliun>.

Sills, E., Shanley, P., Paumgarten, F., de Beer, J. & Pierce, A., 2011. Evolving perspectives on non-timber forest products, in S. Shackleton, C. Shackleton & P. Shanley (eds.), *Non-timber forest products in the global context,* Springer: London.

Simmel, G., 1907. *The philosophy of money.* 3rd ed. Translated from German by T. Bottomore & D. Frisby, 2004. Routledge: London.

Smith, N., 1984. *Uneven development: nature, capital and the production of space.* Basil Blackwell Publisher Ltd: Oxford.

Smith, P.M. & West, C.D., 1994. The globalization of furniture industries/markets, *Journal of Global Marketing*, **7**(3), pp. 103-32.

Smith, S.S., 2014. Social network boundaries and tricky to access populations: a qualitative approach, *International Journal of Social Research Methodology*, **17**(6), pp. 613-23.

Springate-Baginski, O. & Blaikie, P., 2007. Understanding the diversity of participatory forest management livelihood and poverty impacts, in O. Springate-Baginski & P. Blaikie (eds.), *Forests, power and people,* Earthscan: London.

Stahl, J., 2010. The rents of illegal logging: the mechanisms behind the rush on forest resources in Southeast Albania, *Conservation and Society*, **8**(2), p. 140.

Starosta, G., 2010. Global commodity chains and the Marxian law of value, *Antipode*, **42**(2), pp. 433-65.

Straw, B. & Szwajkowski, E., 1975. The scarcity-munificence component of organizational environments and the commission of legal acts, *Administrative Science Quarterly*, **20**(September).

Sturgeon, T.J., 2001. How do we define value chains and production networks? *MIT IPC Globalization Working Paper.* **(00-010).** s.l.

– 2008. From commodity chains to value chains, in J. Bair (ed.), *Frontiers of commodity chain research,* Stanford University Press: Stanford.

SUCOFINDO, 2013. Jumlah dan jenis rotan pada pelabuhan muat dan bongkar. Received by R Myers August 21, 2013.

Sue, V.M. & Ritter, L.A., 2007. *Conducting online surveys.* Sage Publications: London.

Sunderland, T., Ndoye, O. & Harrison-Sanchez, S., 2011. Non-timber forest products and conservation: what prospects? in S. Shackleton, C. Shackleton & Shanley (eds.), *Non-timber forest products in the global context,* Springer: London.

Sunderlin, W., Angelsen, A., Belcher, B., Burgers, P., Santoso, L. & Wunder, S., 2010. Livelihoods, forests and conservation in developing countries: an overview, in D. Roe & J. Elliott (eds.), *The Earthscan reader in poverty and biodiversity conservation,* Earthscan: London.

Sunderlin, W.D., Angelsen, A. & Wunder, S., 2004. Forests and poverty alleviation. CIFOR: Bogor.

Sunderlin, W.D., Resosudarmo, I.A.P., Rianto, E. & Angelsen, A., 2000. The effect of Indonesia's economic crisis on small farmers and natural forest cover in the outer islands. *Occasional Paper.* **(28(E)).** CIFOR: Bogor.

Suryanata, K., 2005. From homegardens to fruit gardens resource stabilization and rural differentiation in upland Java, in T.M. Li (ed.), *Transforming the Indonesian uplands marginality, power and production,* Harwood Academic Publishers: Amsterdam.

Takasaki, Y., Barham, B.L. & Coomes, O.T., 2001. Amazonian peasants, rain forest use, and income generation: the role of wealth and geographical factors, *Society & Natural Resources***, 14**(4), pp. 291-308.

Tanjung Priok customs thwarts rattan, timber smuggling, 2013. Tempo, [online] February 15. Available at: <http://www.tempo.co/read/news/2013/02/15/056461565>. [Accessed on June 19, 2013].

Taylor, D.A., 1999. Requisites for thriving rural non-wood forest product enterprises, *Unasylva***, 50**.

Tellu AT. Karakteristik rotan dan saluran pemasarannya di Provinsi Sulawesi Tengah, in *Doctoral Thesis* (2007).

Terborgh, J., 1999. *Requiem for nature.* Island Press: London.

te Velde, D.W. et al., 2006. Entrepreneurship in value chains of non-timber forest products, *Forest Policy and Economics***, 8**(7), pp. 725-41.

The Nature Conservancy Indonesia, 2002. Building conservation capacity and partnerships at Lore Lindu National Park. *Sixth and Final Report.* The Nature Conservancy Indonesia: Jakarta.

Thompson, G.F., 2003. *Between hierarchies and markets.* Oxford University Press: Oxford.

Thoms, C.A., 2008. Community control of resources and the challenge of improving local livelihoods: a critical examination of community forestry in Nepal, *Geoforum*, **39**(3), pp. 1452-65.

Thomsen, H.J., 1977. Epistemology and the problem of materialism, *Acta Sociologica*, **20**(4).

Timber certification pays off for Indonesia with 114% increase in sales to EU, 2013. Jakarta Globe, [online] June 4. Available at: <http://thejakartaglobe.beritasatu.com/business/indonesias-timber-exports-to-eu-rises-114/>. [Accessed on July 31, 2015].

Tsing, A., 2013. More-than-human sociality, in K. Hastrup (ed.), *Anthropology and nature,* Routledge: London.

Tsing, A.L., 2005. *Friction: an ethnography of global connection.* Princeton University Press: Princeton.

Tumminelli, P., 2004. *Car Design.* Translated from Italian teNueves Publishing Group: New York.

Turner, W.R. et al., 2012. Global biodiversity conservation and the alleviation of poverty, *BioScience*, **62**(1), pp. 85-92.

Uhl, N.W. & Dransfield, J., 1987. *Genera Palmarum.* Allen Press: Lawrence, Kansas.

UNcomtrade.[online] Available at: <http://comtrade.un.org/db/>.

Usaha Rotan Bangkrut, 2012. Kompas, [online] April 7. Available at: <http://bisniskeuangan.kompas.com/read/2012/04/07/05103669/Usaha.Rotan.Bangkrut>. [Accessed on November 7, 2012].

van der Ploeg, J. et al., 2011. Illegal logging in the Northern Sierra Madre Natural Park, the Philippines, *Conservation and Society*, **9**(3), p. 202.

van Zanden, J.L. & Marks, D., 2012. *An economic history of Indonesia.* Routledge: London.

Veno J., 2015. Running short of rattan for weaving iconic products. Borneo Post, [online] May 6. Available at: <http://www.theborneopost.com/2015/05/06/running-short-of-rattan-for-weaving-iconic-products/>. [Accessed on September 2, 2015].

Vieira, L.M. & Traill, W.B., 2008. Trust and governance of global value chains: The case of a Brazilian beef processor, *British Food Journal***, 110**(4/5), pp. 460-73.

Viju, C. & Kerr, W.A., 2011. Protectionism and global recession: has the link been broken? *Journal of World Trade***, 45**(3), pp. 605-28.

Watts, M., 1987. *State, oil and agriculture in Nigeria.* Institute of International Studies, University of California: Berkeley.

Whatmore, S., 2006. Materialist returns: practising cultural geography in and for a more-than-human world, *Cultural Geographies***, 13**(4), pp. 600-9.

Whiting K., 1990. Rattan smugglers scoff at export ban. Los Angeles Times, [online] April 29. Available at: <http://articles.latimes.com/1990-04-29/news/mn-78_1_raw-rattan>. [Accessed on March 22, 2013].

Wilkie, D.S. et al., 2006. Parks and people: assessing the human welfare effects of establishing protected areas for biodiversity conservation, *Conservation Biology***, 20**(1), pp. 247-9.

Willer, D., 1992. Predicting power in exchange networks: a brief history and introduction to the issues, *Social Networks***, 14**(3), pp. 187-211.

Wilson, S. & Zambrano, M., 1993. Cocaine, commodity chains, and drug politics: a transnational approach, in G. Gereffi & M. Korzeniewicz (eds.), *Commodity chains and global capitalism,* s.l

Wollenberg, E. & Nawir, A.S., 1998. Estimating the incomes of people who depend on forests, in E. Wollenberg & A. Ingles (eds.), *Incomes from the forest,* Center for International Forestry Research (CIFOR): Bogor.

Wolters, O., 1967. *Early Indonesian commerce.* Cornell University Press: Ithaca, NY.

World Bank, 2015. The World Bank Data. [online] Available at: <http://data.worldbank.org/indicator/AG.LND.FRST.K2?order=wbapi_data_value_2012+wbapi_data_value+wbapi_data_value-last&sort=desc>. [Accessed on May 3, 2015].

Wright, G., 2011. Indigenous people and customary land ownership under domestic REDD+ frameworks: a case study of Indonesia, *Law and Development Journal***, 7/2**.

Wunder, S., 2001. Poverty alleviation and tropical forests - what scope for synergies? *World Development***, 29**(11), pp. 1817-33.

Wunder, S. et al., 2014. Safety nets, gap filling and forests: a global-comparative perspective, *World Development***, 64**, pp. S29-42.

Yang, H., Ji, C., Nie, N. & Hong, Y., 2012. China 's wood furniture manufacturing industry: industrial cluster and export competitiveness. *MPRA Paper.* **(44282).** Munich Personal RePEc Archive: Munich.

Yeats, J., 2011. Implications of COMTRADE compilation practices for trade barrier analyses and negotiations, *The World Bank Economic Review***, 26**(3), pp. 539-55.

Yeh, E.T., 2000. Forest claims, conflicts and commodification: the political ecology of Tibetan mushroom-harvesting villages in Yunnan Province, China, *The China Quarterly***, 161**, pp. 264-78.

Yi C., 2013. Rattan shortage threatens weavers' future. Borneo Post Online, [online] June 13. Available at: <http://www.theborneopost.com/2013/06/16/rattan-shortage-threatens-weavers-future/>. [Accessed on June 13, 2013].

Yin, R.K., 2003. *Case study research: design and methods.* 3rd ed. SAGE: London.

Yulisman L., 2011. Rattan industry wants buffer stock body. The Jakarta Post, [online] August 5. Available at: <http://www.thejakartapost.com/news/2011/08/05/rattan-industry-wants-buffer-stock-body.html>. [Accessed on April 13, 2013].

Yulisman L., 2014. Ministry mulls revoking certification requirement. The Jakarta Post, [online] November 15. Available at: <http://www.thejakartapost.com/news/2014/11/15/ministry-mulls-revoking-certification-requirement.html>. [Accessed on December 10, 2014].

Appendix A: Publications based on this research

Parts of this thesis have been published as journal articles and book chapters. The publications acknowledge that the data were collected under the auspices of the thesis. I reproduce text in the thesis without additional citation. These publications are listed in the table below with the sections in which some material is reproduced listed in the final column.

Publication text reproduced in sections of this thesis

Publication	Parts used	Section
Myers, Rodd and Muhajir, Mumu. (In press). Searching for justice: rights vs 'benefits' in Bukit Baka Bukit Raya National Park, Indonesia. Conservation & Society.[92]	Description of forest governance in Indonesia	Section 1.1; Sub-section 1.1.2
Myers, Rodd (2014). Multi-scalar access analysis: understanding how benefits are shared in a rattan global value chain. SAGE Publications: London.	Parts of method description.	Section 3.4
Myers, Rodd (2015). What the Indonesian rattan export ban means for domestic and international markets, forests, and the livelihoods of rattan collectors. Journal of Forest Policy and Economics (50).	All	Chapter 8

92. Drafted as part of the thesis but used in an article published under the auspices of the Center for International Forestry Research. The text of this article used in the thesis were drafted by Rodd Myers alone.

Appendix B: Household survey

Two versions of the household survey were used. The first was used in Utani. It was designed to highlight actors for follow-up in the village. The second version was used in Desa Dua where no follow-up was planned. Therefore, some basic information from the Network Interview were added to this instrument. The Desa Dua version is shown here.

Desa Dua Version

1. How many people live in this house?
1.1 How many adult women and men are there?
P) Women
L) Men
1.1.1 Ada berapa anak (berumur 18 atau lebih muda) yang tinggal di rumah ini?

[for each member of the household]

1.2 What are the names of the adults mentioned?
1.3 For each adult who lives here, what is their role in the family?
a) Head of household
b) Spouse of head of household
c) Mother, father, or parent in-law
d) Grandparent
e) Child
f) Child's spouse
g) Grandchild
h) Sibling
i) Niece or nephew
j) Uncle or aunt
k) Other
1.4 For each adult living here, when were they born?
1.5 For each adult living here, where were they born?
1.6 For each adult living here, what is their tribe?
1.7 For each adult living here, what is their family name/ group?
1.8 For each adult living here, what is their marital status?
a) Unmarried
b) Married
c) Divorced
d) Widowed
1.9 For each adult living here, what is their highest level of education?
1.10 For each adult living here, what is their religion?

1.11 For each adult living here, are they physically able to work to contribute to the family income-generating activities?
a) Yes
b) No

[If Yes]

1.12 For each adult living here, what do they do for a living?

1.12.1 From all of the products and activities in the family, which are the most important?

[If Rattan]

1.13.1 How many times does [person x] collect rattan in a year?
1.13.2 How long is each trip? [days or weeks]

Instrument No	1	Tool Name	Household Survey
Version	3	Tool Type	Structured Survey
HH Number		Interviewer	
Description			

Research explained □ YES

Opt-out provided □ YES

Consent obtained □ YES

	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
	GND	NAME	FAM P	YOB	POB	CULTURE	FAMILY	M STAT	EDUCATION
1	M F								
2	M F								
3	M F								
4	M F								
5	M F								
6	M F								
7	M F								
8	M F								

1.1.1 Children:

		PR	1	2	3	4	5	6	7	8
1.10	RELIGION									
1.11	ABILITY		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
1.12.1	RATTAN									
	cacao									
	DRY RICE									
	GOLD									
	TRANSPORT									
	WILD PIG									
	TEACHER									
	SHOP									
	FARM LAB									
	OTHER									
1.13.1	RATTAN TRIPS /YR									
1.13.2	RATTAN DAYS /TRIP									

2.[IF Rattan activities]
Please tell me the names of five people you need the most for rattan collection (except the buyer). What is their role?

( )	Name	Role	( )	Name	Role
a			a		
b			b		
c			c		
d			d		
e			e		
( )			( )		
a			a		
b			b		
c			c		
d			d		
e			e		

3.[IF Rattan activities]
To whom do you usually sell your rattan?
[which foreman or buyer]

( )	( )
( )	( )

4.[IF Rattan activities]
From where do you usually collect rattan?
[which forest]

( )	( )
( )	( )

	UNIT
5.How much land does this family own?	
2.2 cacao land	
2.3 Other agricultural land	
2.4 Unused land	
6. Does this household have a television?	YES / NO
7. Does this household have a satellite dish?	YES / NO
8. Does this household have a generator?	YES / NO
9. How many light bulbs are in this house?	
10. How many cacao trees does this household have?	
11. How many motorbikes are owned by members of this household?	

[OBSERVED DATA]

12.Wall construction

11.1 Bamboo (%)	
11.2 Wood (%)	
11.3 Concrete (%)	
	100%

13.Floor construction

12.1 Soil(%)	
12.2 Wood (%)	
12.3 Cement (%)	
12.4 Concrete (%)	
	100%

14. Roof construction

13.1 Leaves (%)	
13.2 Corrugated metal (%)	
	100%

15.Number of glass windows

Appendix C: Semi-structured surveys

Network Interview Checklist

Indicator	Guiding Questions
Duration of relationship	How long have you known this person or worked with this [company/agency]?
Authority - Receive spiritual guidance on how to do activities	Are there other people or institutions whose permission you need in order to do {Activity}? If you do not get permission, is there anyone who might seek to punish you? Do you make agreements or receive the blessings from family members to {activity}?
Authority - Get social permission to do your activities	
Authority - Get legal permission to do your activities	
Authority - Receive punishment from	
Authority - Family permissions	
Capital - Borrow money from a lender	Is there anyone from whom you borrow or receive finances to conduct {actvity}? Do you save your funds with anyone? Do you use land to do {activity}? Do you have land that enables you to do {activity}?
Capital - Save your money in an institution	
Capital - Use land	
Capital - Let others use your land so that you do something else	
Social Identity - Engage in activities on the basis of tribe	Do you think any of these relationships would still be possible if you had a different ethnicity, religion, gender, profession, were much younger or much older?
Social Identity - Engage in activities on the basis of tradition	
Social Identity - Engage in activities or make claims on the basis of religion	
Social Identity - Engage in activities or make claims on the basis of profession	
Social Identity - Engage in activities or make claims on the basis of gender	
Social Identity - Engage in activities or make claims on the basis of age	
Knowledge - Learn about how to do product activities better	What special knowledge do you have that enables you to interact with this actor? From where did you learn this knowledge?
Knowledge - Understand more about product	
Knowledge - Learn how to do business better	
Labour Relations - Hire labour	Do you hire any labour to help you with {activity}? Who hires you? Do you have special techniques that make you more employable? Do you receive any income from other sources without which you could not do {activity}? From whom?
Labour Relations - Have employment	
Labour Relations - Use specialised techniques related to product	
Labour Relations - Receive other income to finance activities related to product	
Labour Relations - Make claims based on right to labour	

Market - Buy product from	Who do you {buy/sell} {product}{from/to}? How do you get to the location you need to be in order to do {activity}? Who provides this service? Do you have a written or verbal contract for {sale/ puchase} or employment? With whom? Is there anyone else who is a competetor for {activity}? Are there any other people or companies or government departments with which you co-operate in order to do {activity}?
Market - Sell product to	
Market - Use for transportation of self or product	
Market - Hire or use storage facilities	
Market - Have any other kind of contract related to product	
Market - Compete with	
Market - Co-operate with	
Social Relations - Help you if you have too much work to do	Who takes care of your other responsibilities when you are busy with {activity}? What other forms of support does your family provide? From whom? Do you borrow anything from friends or family in order to do activities? From whom?
Social Relations - Help to take care of your children	
Social Relations - Help to take care of the house or family while gone	
Social Relations - Help you to make connections to people that they know	
Social Relations - Borrow and materials, equipment or supplies	
Technology - Purchase or borrow equipment	Do you use any special tools or communications technologies to do these activities? If so, from whom do you acquire them?
Technology - Purchase supplies or mobile phone credit	
Make other rights-based claims	Why do you think that you can do this activity and others cannot? Should everyone be able to do what you do, or not? Why?
Need for Alter	For each person / organisation you have mentioned, how much do your need her / him / it?
Need for Alter function	For each role that you have mentioned, how much do your need it to benefit from {product}?

Detailed Village Actor Interview Checklist

PRODUCTIVE ASSETS

[Ask of each alter]

Indicator	**Guiding Questions**
Method of gaining access	How did you first get involved in this activity with {ALTER}?
	How did you first meet {ALTER}?
Duration of relationship	For how many years have you engaged in this kind of activity with {ALTER}?
Preferences / choice if given another alternative (control)	What could convince you to {trade with / use} someone other than {ALTER}?
Alternative methods (Control)	What would you do if {ALTER} was not available to {trade with / use}{product}?
Alternative availability (control)	If you want to change something about how you deal with {ALTER}, can you make the decision to do so?
Ability to disagree with alters (control)	If you disagree with {ALTER} on something related to {PRODUCT}, what do you do? Why? Please give an example.
Ability for alters to disagree(control)	If {ALTER} disagrees with you on something related to {PRODUCT}, what would happen if {ALTER} expressed this to you? Please give an example.
Ability to influence alters (control)	Have you ever changed the terms of your agreement with {ALTER} even if they did not agree with you? On what basis can you change the terms of agreement?
Ability to be influenced by alters (control)	Has {ALTER} ever changed the terms of your agreement with you even if you did not agree with {ALTER}? On what basis can they change the terms of agreement?
Descriptions of negotiation processes	Please describe how the transaction between you and {ALTER} are negotiated.
Limitations of access from next phase	Are any of you interested {next step of GPN}? What is stopping you from doing that?

[General]	
Reciprocal obligations (Gain, Maintain)	Do you feel any kind of responsibility to also help those who have helped you? [Describe] Can you think of ways that you have helped others because they have helped you? [Describe] Why do you think that the people who {trade with or help} you chose to do it with you?

Social safety net (maintain)	If you had a problem with your activities, to whom would you turn?

PRODUCT	
Influence of biogeophysical reproduction of rattan	What are the most important things to know about {product} in order to harvest, transport and market it? Which of these aspects make it easy or difficult to conduct your activities? (physical attributes, location, quality)
Influence of locational distibution and concentration	
Influence of quality of rattan on business transactions	
Actors and non-actors that can and cannot access technologies required to benefit from rattan	What special equipment or technoolgies are needed to harvest {product} and how have you been able to obtain them?
Influence on Value of rattan on business transactions	Do you change how often you harvest {prodcut} depending on the price? If offered {low price} would you go? If {high price}?
Seasonality of harvest / activities	
Harvest / processing levels per season	

PRODUCTION, INCOME AND COST	
Market - Use for transportation of self or product	How do you get to where you need to be in order to {ACTIVITY}?
Technology - Purchase or borrow equipment	What inputs (equipment, supplies or ingredients) do you need to do these activities?
Technology - Purchase supplies or mobile phone credit	
Capital - Borrow money from a lender	From where did you get the money to purchase the equipment?
Reciprocal obligations (Gain, Maintain)	What do you give the person who lends you in exchange for borrowing the equipment?
Seasonality of harvest / activities	When are the peak seasons for {collecting/ processing} {product}?
Havest / processing levels per season	How much {product} would you normally {collect/process/buy/sell} each season?
Income from rattan activities	What revenues did you receive last year from {transaction} in each season?
Mentions of influence on other phases by actors	When you think about who buys {Product}, how do you think buyers and processeors affect your ability to benefit from it?
Indication of reliable income	Why do you chose to work with {Product}?
Reciprocal returns	What other kinds of benefits do you receive for these activities? In what ways, other than financial, does your involvement with {product} make your life better?

Costs of rattan activities	What about your costs? First, lets talk about regular expenses that you might experience regularly at certain points in the year: - Labour - Equipment - Supplies / processing - Storage - Permits & Taxes - Transporation - Packaging - Communications - Other? What about other costs that might only occur once a year of every few years- like bigger expenses?
Preference to engage in other activities if possible.	Is there another type of activity or product that you would prefer to earn a living from? Please describe.
Material constraints to engaging in alternative activities	Why do you not do that activity?
Alternative availitability (control)	

GENERAL	
Make other rights-based claims	Why can you benefit from {product} through [activitires], but others are not allowed to? If a {woman / man} wanted to do the same activity, could s/he? If a new person came to the village from another tribe (pendatang atau bukan anak daerah), could s/he start doing these activities too?
Authority - Get social permission to do your activities	Who makes decisions about whether or not your are allowed to do undertake {ACTIVITY}? [Repeat ALTER Q's if new actor added]
Authority - Receive punishment from	Are you at risk of being punished / scantioned for doing {Activity}?
Make other rights-based claims	Are you are aware that {Activity} is not legal? Why do you continue to do harvest {product}?

Institutional Interview Checklist

PRODUCTIVE ASSETS	
[Ask of each alter]	
Indicator	**Guiding Questions**
Method of gaining access	How did you first get involved in this activity with {ALTER}?
	How did you first meet {ALTER}?

Duration of relationship	For how many years have you engaged in this kind of activity with {ALTER}?
Preferences / choice if given another alternative (control)	What could convince you to {trade with / use} someone other than {ALTER}?
Alternative methods (Control)	What would you do if {ALTER} was not available to {trade with / use}{product}?
Alternative availitability (control)	If you want to change something about how you deal with {ALTER}, can you make the decision to do so?
Ability to disagree with alters (control)	If you disagree with {ALTER} on something related to {PRODUCT}, what do you do? Why?
	Please give an example.
Ability for alters to disagree(control)	If {ALTER} disagrees with you on something related to {PRODUCT}, what would happen if {ALTER} expressed this to you?
	Please give an example.
Ability to influence alters (control)	Have you ever changed the terms of your agreement with {ALTER} even if they did not agree with you?
	On what basis can you change the terms of agreement?
Ability to be influenced by alters (control)	Has {ALTER} ever changed the terms of your agreement with you even if you did not agree with {ALTER}?
	On what basis can they change the terms of agreement?
Descriptions of negotiation processes	Please describe how the transaction between you and {ALTER} are negotiated.

[General]	
Reciprocal obligations (Gain, Maintain)	Do you feel any kind of responsibility to also help those who have helped you? [Describe]
	Can you think of ways that you have helped others because they have helped you? [Describe]
	Why do you think that the people who {trade with or help} you chose to do it with you?
Social safety net (maintain)	If you had a problem with your activities, to whom would you turn?
Authority gives / denies persmission	Please describe in what ways you enable other actors to benefit from {product}. Do actors need permission from you to emgage in {product}-related activities?
Training of actors	Do you train or give new infomration to any other people who work with {product}?
Issuance of permit	Are you invovled in assisting any other people active in {products} to get the appropriate permits?

PRODUCT	
Influence of biogeophysical reproduction of rattan	What are the most important things to know about {product} in order to harvest, transport and market it? Which of these aspects make it easy or difficult to conduct your activities? (physical attributes, location, quality)
Influence of locational distibution and concentration	
Influence of quality of rattan on business transactions	
Technologies ideal for upgrading resource	What are the technologies that you use to process this resource? How did you get access to these technologies? (eg. Transportation, communication, machinery, factories)

Actors and non-actors that can and cannot access technologies required to benefit from rattan	What special equipment or technoolgies are needed to harvest {product} and how have you been able to obtain them?
Influence on Value of rattan on business transactions	Do you change how often you harvest {prodcut} depending on the price? If offered {low price} would you go? If {high price}?
Seasonality of harvest / activities	
Havest / processing levels per season	How much volume do you deal in per month?

PRODUCTION, INCOME AND COST	

Reciprocal obligations (Gain, Maintain)	What do you give the person who lends you in exchange for borrowing the equipment?
Income from rattan activities	What revenues did you receive last year from {transaction} in each season?
Mentions of incluence on other phases by actors	When you think about who buys {Product}, how do you think buyers and processeors affect your ability to benefit from it?
Indication of reliable income	Why do you chose to work with {Product}?
Reciprocal returns	What other kinds of benefits do you receive for these activities? In what ways, other than financial, does your involvement with {product} make your company stronger?
Costs of rattan activities	What about your costs? First, lets talk about regular expenses that you might experience regularly at certain points in the year:
	- Labour
	- Equipment
	- Supplies / processing
	- Storage
	- Permits & Taxes
	- Transporation
	- Packaging
	- Communications
	- Other?
	What about other costs that might only occur once a year of every few years- like bigger expenses?
	What gives you the competetive edge against other companies?
	What do you think that some of your competetors do better than you? What are the ways in which you would like to improve those aspects of yoru business?
Preference to engage in other activities if possible.	Is there another type of activity or product that you would prefer to earn a living from? Please describe.
Material constraints to engaging in alternative activities	Why do you not do that activity?
Alternative availitability (control)	
Limitations of access from next phase	Are any of you interested {next step of GPN}? What is stopping you from doing that?

GENERAL	

Make other rights-based claims	Why can you benefit from {product} through [activitires], but others are not allowed to?
	If a {woman / man} wanted to do the same activity, could s/he?
	If a new person came to the village from another tribe (pendatang atau bukan anak daerah), could s/he start doing these activities too?
	Are you are aware that {Activity} is not legal?
	Why do you continue to do {activity} {product}?
Authority - Get social permission to do your activities	Who makes decisions about whether or not your are allowed to do undertake {ACTIVITY}? [Repeat ALTER Q's if new actor added]
Authority - Receive punishment from	Are you at risk of being punished / scantioned for doing {Activity}?
Compared to two years ago	How have your activities or relationships changed over the past two years?

Appendix D: Group interview

1. Sociogram by how long have been doing Rattan (15 min)

EXPLAIN: First we are going to look at some changes over time concerning rattan collection.

INSTRUCT: Arrange yourselves in a row starting from longest time collecting rattan to shortest.

a. {long time} How has rattan collection changed since you started?
b. {go through each year} what were the prices of rattan when you started?
c. What are the most important things to know about {product} in order to harvest, transport and market it? Which of these aspects make it easy or difficult to conduct your activities? (physical attributes, location, quality)

2. Basic data collection (15 min)

EXPLAIN: I will give you a simple form that gives some idea about who you collect rattan with, how you sell to and how much rattan you usually collect.

INSTRUCT: Please fill out the form by writing your name, the names of the five people you most often collect rattan with and the person you usually sell your rattan to. Note that for each person, you can select whether you need this person, you prefer this person, or you can do the same activity with anyone. The next line is for why you chose to sell to the buyer that you named, and the last line is for how much rattan you usually collect in one week.

3. Rattan collector network (30 min)

EXPLAIN: Now we are going to do an exercise to understand who are the other people who you interact with most to collect rattan. To do this, we will talk about interactions. An interaction can be that you usually collect rattan with that person, that you partner with that person when you harvest rattan, that you sell your rattan to that person, or any other kind of interaction.

INSTRUCT:

- We will give each of you three lengths of string.
- You will tie the string around the waist of the people that you most often interact with to collect rattan.
- You keep hold of the other end in your hand.
- You can tie the string around someone's waist who has already ties one around yours.
- If the person you are thinking of is not here, we will place a chair to represent that person and write their name on the chair. You do not have to use all the strings.

DISCUSS:

a) How many people have more than three strings around their waist? Four? Five? More?
b) {Central people} For those with {the highest}, why are there so many strings tied around them?
c) What would happen if these people decided no longer to collect rattan?
d) For those with only one or two strings tied to them, what to they do differently from those with many strings?
e) How different would these connection have been a year ago? Five years ago?

6. Foreman exercise (25 min)

EXPLAIN: Now we will talk about how you are organised by buyer.
INSTRUCT: Break into groups according to what foreman or boss you sell to or sell through. For those who use a foreman, group by foreman. For those who do not, group by what boss you usually sell to. Move into the groups and discuss the following questions:

a. Why do you choose to work with this boss or foreman?
b. If you had to use a different boss or foreman who would you use? Why would you make that choice?
c. What are the advantages of selling through your boss or foreman?
d. What are the disadvantages of selling through your boss or foreman?
e. What would motivate you to change to work with another foreman or boss?
f. How strong is your ability to negotiate with the boss or foreman? Can you disagree with your boss or foreman? Do you think you are getting the best price possible?

Appendix E: Rattan market survey

The structured survey was designed in Survey Gizmo[93] as an on-line survey. It included branching and piping logic that is difficult to portray on paper. Many questions were conditional on previous responses. In this Appendix, I provide the survey as it is exported from Survey Gizmo. Since the survey used dynamic logic, it does not read that well as a paper survey, but I have retained the logical rules that were applied so an interested reader can see how logic was applied in the survey. The survey text and logic is as follows:

Introduction

ID: 6

My name is Rodd Myers, I am a post-graduate researcher from the University of East Anglia in the United Kingdom. I am researching the value chain of rattan products. This survey has reached you because I believe that your company is, or has been in the past, involved with the processing, manufacturing, trading, transportation or retailing rattan products.

There have been a number of policy changes in several countries within the last five years that affect the rattan industry. I am interested in how these policies impact both active and inactive businesses and communities in both positive and negative ways.

Of course, your participation is voluntary. At the end, you will be able to tell me how private you want your responses to be. You have the option of anonymity. You are free to skip most questions for which you do not know the answer or do not wish to respond. You will be able to add, edit or delete your responses until December 31, 2013.

I will also ask you at the end if you would like a copy of the survey results summary. This may be useful for your business.

The more you and your colleagues at other companies respond, the more clarity the research can provide on the condition of the rattan industry. If you have any questions, you can e-mail me at rodd.myers@uea.ac.uk.

The survey will take about 15 to 20 minutes, depending on your answers. If you have your company's sales information and important contacts ready, it will save you time on the survey. You also have the option to decline to provide this information.

Logic: Show/hide trigger exists.

ID: 2

Would you like more information about the research, researcher, or confidentiality before

93. http://www.surveygizmo.com

proceeding?

Yes

No

Logic: Dynamically shown if "Would you like more information about the research, researcher, or confidentiality before proceeding?" = No

ID: 3

Do you agree to proceed with the survey?*

Yes

No

Page entry logic: This page will show when: Question #1 contains any ("Yes")

More Information

ID: 7

About the research

I am conducting this research toward my PhD from the School of International Development at the University of East Anglia, based in Norwich, UK. The main question of my research is, "How do actors benefit from forest resources in a value chain?" In order to address this question, I look at the ways in which people and institutions access forest resources at different phases within a value chain.

I suggest that people and institutions use several forms of access, through their relationships, in order to benefit from a natural forest resource. Value chains are a way of thinking about how a product moves from its origin to the final consumer. As the resource is upgraded through a value chain, people, and relationships among people change. This results is another set of patterns of access. At each phase of production, there are both relationships within that phase, and with people in other phases, which may have effect on one another. I look at these relationships from the starting point of rural poor actors benefiting from a forest resource up to the final consumption of the products.

I examine the policy environment that enables access for some and denies it for others. People have many ways of accessing things from which they wish to benefit. They could use family connections, market connections, cultural identification with the land, availability of labour, land that is under their control, social connections with people who can facilitate access and so on. It is on these aspects of access that I will focus by asking people how they access whatever they access.

About me

I am Canadian. I have worked with value chains, agriculture and economic development for over 15 years, mostly with NGOs and co-operatives. My Masters degree is from the Imperial College of the University of London is in Sustainable Agriculture and Rural Development. My current interest in rattan is based on the international nature of its value chain and the fact that it originates in a forest, which has implications for conservation projects. I focus on the relations among actors in the value chain and look at who has access to the benefits of rattan and what strategies they use to benefit from rattan and rattan products. If you want to

know more about me, please visit my profile on the UEA website.

About confidentiality

Confidentiality of your responses is of highest importance. At the end of the survey, I will ask you with what level of confidentiality you would like me to keep your data. There are three levels:

1. I can atribute your responses to you and your company.
2. I can attribute your responses to your company only. No one will know your identity.
3. I cannot attribute your responses to you or your company. Only my supervisor and I will know the identity of you and your company.

The choice is entirely yours.

I am bound by the ethical policies of the University to abide by your instructions. If you have any questions, you may contact me a rodd.myers@uea.ac.uk. If you believe that I have not abided by your wishes for the treatment of data, you can also e-mail my supervisor, Professor Thomas Sikor at t.sikor@uea.ac.uk.

ID: 8

Do you agree to proceed with the survey?*

Yes

No

Page entry logic: This page will show when: (Question #2 contains any ("No") OR Question #3 contains any ("No"))

Disqualification

ID: 188

Thank you for your interest in taking the survey, however, I need you agreement in order to proceed. You have indicated that you do not agree.

Setup

Here, I ask you some basic questions to optimise the survey for you.

ID: 9

Username*

How would you like me to refer to you during the survey? You can use a nickname or false name if you wish. At the end of the survey, I will ask for your full name should you choose to give it, along with confidentiality preferences.

ID: 10

Company Name*

Please enter the way you would like me to refer to your company during the survey. You can use an abbreviation or acronym if you wish, or even a false name. At the end of the end of the survey, you will be asked for the full name of your company, should you chose to give it, and confidentiality preferences.

Shortname / Alias: Company_HQ_country

Variable name: Company_HQ_country

ID: 11

In what country is your company's headquarters?*

[Country List]

Market activity detail

Shortname / Alias: QUALITY_Natural

Variable name: QUALITY_Natural

ID: 256

[question("value"), id="10"] is a [question("value"), id="253"] of what qualities of natural rattan product?

Drag all that apply to the right-hand column and sort in order of importance to [question("value"), id="10"].

High

Medium

Low

Logic: Hidden by default Hidden unless: Question #9 contains any ("Yes")

Shortname / Alias: QUALITY_Synthetic

Variable name: QUALITY_Synthetic

ID: 258

[question("value"), id="10"] is a [question("value"), id="253"] of what qualities of synthetic rattan product?

Drag all that apply to the right-hand column and sort in order of importance to [question("value"), id="10"].

High

Medium

Low

Shortname / Alias: Target_Market_segment

Variable name: Target_Market_segment

ID: 273

Which market segments does [question("value"), id="10"] target?

Drag all that apply to the right-hand column and sort from most to least important.

Residential indoor

Residential outdoor

Commercial office indoor

Commercial restaurant indoor

Commercial restaurant outdoor

Public spaces indoor

Public spaces outdoor

Shortname / Alias: TARGET_regions

Variable name: TARGET_regions

ID: 271

Which regional markets does [question("value"), id="10"] target?

Domestic

Asia

Europe

North America

Central America

South America

Oceana

Africa

More activity detail

Validation: Min = 0 Max = 100

Logic: Hidden unless: Question #7 contains any ("Yes")

Shortname / Alias: RATTAN_Years

Variable name: RATTAN_Years

ID: 166

For how many years has [question("value"), id="10"] been a [question("value"), id="253"] of natural rattan or natural rattan products?

0 _____[__]_____ 100

Validation: Min = 0 Max = 100

Logic: Hidden unless: Question #8 contains any ("Yes")

Shortname / Alias: RATTAN_Years_Past

Variable name: RATTAN_Years_Past

ID: 298

For how many years had [question("value"), id="10"] been a [question("value"), id="253"] of natural rattan or natural rattan products before stopping?

0 _____[__]_____ 100

Validation: Min = 0 Max = 100

Logic: Hidden unless: Question #9 contains any ("Yes")

Shortname / Alias: SYNTHETIC_Years

Variable name: SYNTHETIC_Years

ID: 297

For how many years has [question("value"), id="10"] been a [question("value"), id="253"] of synthetic rattan products?

0 _____[__]_____ 100

Logic: Hidden unless: Question #7 contains any ("No")

Shortname / Alias: YEAR_Stopped_rattan

Variable name: YEAR_Stopped_rattan

ID: 30

In what year did [question("value"), id="10"] stop being a [question("value"), id="253"] of natural rattan?

2013

2012

2011

2010

2009

2008

2007

2006

2005

2004

2003

Logic: Hidden unless: (Question #7 contains any ("Yes") AND Question #10 contains any ("Cane processor","Cane broker","Cane transporter","Furniture manufacturer"))

Variable name: SPECIES_Current

ID: 15

For which of the following rattan species is [question("value"), id="10"] a [question("value"), id="11"]?

Drag the species from the list of options in the left column to your selected species in the right column. You can order them in term of most significant on the top to least significant on the bottom.

Calamus burckianus (Balubuk)

Calamus zollingeri (Batang)

Demonorps robusta (Batang Susu)

Plectocomia elongata (Bubuai)

Calamus manan (Manau)

Calamus tumidus (Manau tikus)

Korthalsia jungjuhnii (Sampang)

Calamus scipionum (Semambu)

Calamus ornatus (Seuti)

Calamus inops (Tohiti)

Logic: Hidden unless: (Question #8 = ("Yes") AND Question #10 contains any ("Cane processor","Cane broker","Cane transporter","Furniture manufacturer"))

Variable name: SPECIES_Past

ID: 24

For which of the following rattan species was [question("value"), id="10"] a [question("value"), id="11"]?

Drag the species from the list of options in the left column to your selected species in the right column. You can order them in term of most significant on the top to least significant on the bottom.

Calamus burckianus (Balubuk)

Calamus zollingeri (Batang)

Demonorps robusta (Batang Susu)

Plectocomia elongata (Bubuai)

Calamus manan (Manau)

Calamus tumidus (Manau tikus)

Korthalsia jungjuhnii (Sampang)

Calamus scipionum (Semambu)

Calamus ornatus (Seuti)

Calamus inops (Tohiti)

Variable name: SPECIES_Other

ID: 31

If there are any other species of rattan important to [question("value"), id="10"], please list them here.

Business network

In this section, I will ask you about what other businesses with which you do business. This is so that I can follow the value chain and understand what other companies and organisations are most important for [question("value"), id="10"]'s business.

Logic: Hidden unless: Question #7 contains any ("Yes")

ID: 25

What five (5) companies, organisations, or institutions are most important for [question("value"), id="10"]'s business?

Please provide the names of the companies or institutions. These companies could be suppliers, customers, trade associations, competitors, or any other institution that facilitates your business.

Note that contact information will always be used in aggregate form only and in no way will be identified with you or your company nor the names of the contacts that you mention, regardless of the confidentiality settings you choose.

Logic: Hidden unless: Question #7 contains any ("No")

ID: 26

What five (5) companies, organisations, or institutions were most important for [question("value"), id="10"]'s business?

Please provide the names of the companies or institutions. These companies could be suppliers, customers, trade associations, competitors, or any other institution that facilitates your business.

Note that contact information will always be used in aggregate form only and in no way will be identified with you or your company nor the names of the contacts that you mention, regardless of the confidentiality settings you choose.

Validation: Min. answers = 1 (if answered)

Shortname / Alias: ALTER_Company

Variable name: ALTER_Company

ID: 4

Enter company, organisation or institution names here: (If you don't want to give the name, just write something that makes sense to you, like "Buyer 1" or "Supplier Indonesia")

1:

2:

3:

4:

5:

Business Network Detail

Validation: Min. answers = 1 (if answered)

Shortname / Alias: ALTER_Contact_name

Variable name: ALTER_Contact_name

ID: 226

Please provide the name of a contact person at [page("piped title")].

Contact Name:

Shortname / Alias: ALTER_MS-MR-DR

Variable name: ALTER_MS-MR-DR

ID: 289

Title

Ms

Mr

Dr

Validation: %s format expected Min. answers = 1 (if answered)

Shortname / Alias: ALTER_email

Variable name: ALTER_email

ID: 266

Please provide an e-mail address for the contact person at [page("piped title")].

E-mail:

Shortname / Alias: ALTER_Country

Variable name: ALTER_Country

ID: 187

In what country is [page("piped title")]'s headquarters?

[Country List]

Logic: Require when

Shortname / Alias: ALTER_mention_consent

Variable name: ALTER_mention_consent

ID: 89

I may wish to follow up with [page("piped title")]. Would it be okay if I mentioned that you referred me?

Mentioning that someone [page("piped title")] knows referred them to the survey, helps the response rate. If you say "No" I will not mention your name or your company's name in any way to [page("piped title")].

Yes

No

Validation: Min = 0 Max = 100

Shortname / Alias: ALTER_Duration

Variable name: ALTER_Duration

ID: 305

For how many years has [question("value"), id="10"] done business with [page("piped title")]?

0 _____[__]_____ 100

Shortname / Alias: ALTER_Introduced

Variable name: ALTER_Introduced

ID: 32

How was [question("value"), id="10"] introduced to [page("piped title")]?

Open tender

Mutual colleague's recommendation

Industry reputation

Related by family

Friend / personal connection

Met at a trade show or networking function

Internet search

Don't know

Other:

Validation: Min = 1 Max = 5

Logic: Hidden unless: Question #7 contains any ("Yes")

Shortname / Alias: ALTER_Need_Current

Variable name: ALTER_Need_Current

ID: 33

How much does [question("value"), id="10"] need [page("piped title")] to conduct its business?

1 _____[__]_____ 5

Validation: Min = 1 Max = 5

Logic: Hidden unless: Question #7 contains any ("No")

Shortname / Alias: ALTER_Need_Past

Variable name: ALTER_Need_Past

ID: 34

How much did [question("value"), id="10"] need [page("piped title")] to conduct its business?

1 _____[__]_____ 5

Logic: Hidden unless: Question #7 contains any ("Yes")

Shortname / Alias: ALTER_Role_Current

Variable name: ALTER_Role_Current

ID: 180

What does [page("piped title")] do for [question("value"), id="10"]?

Drag all that apply from the left column to the right column and order them from most to least important.

supply product or materials to [question("value"), id="10"]

manufacture product for [question("value"), id="10"]

transport material or product for [question("value"), id="10"]

retail [question("value"), id="10"] product

[page("piped title")] buys [question("value"), id="10"] product

[page("piped title")] supplies [question("value"), id="10"] with product

[page("piped title")] imports or exports [question("value"), id="10"] product

supply unfinished materials to [question("value"), id="10"]

[page("piped title")] manufactures furniture for [question("value"), id="10"]

[page("piped title")] transports product for [question("value"), id="10"]

[page("piped title")] provides marketing services for [question("value"), id="10"]

retail [question("value"), id="10"] furniture

[page("piped title")] provides professional services for [question("value"), id="10"] (such as accounting or legal)

provide marketing services

other

Logic: Hidden unless: Question #7 contains any ("No")

Shortname / Alias: ALTER_Role_Past

Variable name: ALTER_Role_Past

ID: 275

What did [page("piped title")] do for [question("value"), id="10"]?

Drag all that apply from the left column to the right column and order them from most to least important.

supply product or materials to [question("value"), id="10"]

manufacture product for [question("value"), id="10"]

transport material or product for [question("value"), id="10"]

retail [question("value"), id="10"] product

[page("piped title")] bought [question("value"), id="10"] product

[page("piped title")] supplied [question("value"), id="10"] with product

[page("piped title")] imported or exported [question("value"), id="10"] product

supply unfinished materials to [question("value"), id="10"]

[page("piped title")] manufactured furniture for [question("value"), id="10"]

[page("piped title")] transported product for [question("value"), id="10"]

[page("piped title")] provided marketing services for [question("value"), id="10"]

retail [question("value"), id="10"] furniture

[page("piped title")] provided professional services for [question("value"), id="10"] (such as accounting or legal)

provide marketing services

other

Business activity details

ID: 277

In this section, I ask you about [question("value"), id="10"]'s business activities. This information is important so that I can see trends among companies with certain types of

activities.

Validation: Must be percentage

Logic: Hidden unless: Question #10 contains any ("Furniture manufacturer","Furniture exporter","Furniture importer","Furniture wholesaler","Furniture retailer")

Shortname / Alias: BUSINESS_Products

Variable name: BUSINESS_Products

ID: 130

For what products is [question("value"), id="10"] a [question("value"), id="253"]?

Please enter the main products and what percentage of the business they constitute. The total should equal 100.

Natural rattan furniture

Leather furniture

Wood furniture

Bamboo furniture

Synthetic rattan furniture

Synthetic leather furniture

Metal furniture

Plastic furniture

Other natural fibre furniture

Other synthetic fibre furniture

Non-furniture rattan products

Non-furniture other natural fibre products

Non-furniture other products

Validation: Must be percentage

Logic: Hidden unless: Question #10 contains any ("Furniture manufacturer","Furniture exporter","Furniture importer","Furniture wholesaler","Furniture retailer")

Shortname / Alias: BUSINESS_Products_5_years_ago

Variable name: BUSINESS_Products_5_years_ago

ID: 286

For what products was [question("value"), id="10"] a [question("value"), id="253"] five years ago?

Please enter the main products and what percentage of the business they constituted five years ago. The total should equal 100.

Natural rattan furniture

Leather furniture

Wood furniture

Bamboo furniture

Synthetic rattan furniture

Synthetic leather furniture

Metal furniture

Plastic furniture

Other natural fibre furniture

Other synthetic fibre furniture

Non-furniture rattan products

Non-furniture other natural fibre products

Non-furniture other products

Validation: Min = 0 Max = 1000

Shortname / Alias: EMPLOYEES

Variable name: EMPLOYEES

ID: 168

On average, how many employees did [question("value"), id="10"] have at any one time in the following years?

2002	0 _____[__]_____ 1000
2004	0 _____[__]_____ 1000
2006	0 _____[__]_____ 1000
2008	0 _____[__]_____ 1000
2010	0 _____[__]_____ 1000
2012	0 _____[__]_____ 1000

Validation: Min = 0 Max = 1000

Logic: Hidden unless: Question #10 contains any ("Cane processor","Cane broker","Cane retailer","Furniture manufacturer","Furniture exporter","Furniture importer","Furniture

wholesaler","Furniture retailer")

Shortname / Alias: SUBCONTRACTORS

Variable name: SUBCONTRACTORS

ID: 276

On average, how many subcontracted workers did [question("value"), id="10"] have at any one time in the following years?

2002	0 _____[__]_____ 1000
2004	0 _____[__]_____ 1000
2006	0 _____[__]_____ 1000
2008	0 _____[__]_____ 1000
2010	0 _____[__]_____ 1000
2012	0 _____[__]_____ 1000

ID: 48

The next questions ask about [question("value"), id="10"]:

- rattan trading volumes
- rattan trading values, and
- annual turnover from 2002 to 2012.

Note that financial information will always be used in aggregate form only and in no way will be identified with you or your company, regardless of the confidentiality settings you choose.

Logic: Show/hide trigger exists.

ID: 49

[question("value"), id="9"], would you prefer to:*

Enter values in ranges (not exact figures)

Upload spreadsheets or annual reports

Refer to a website that has this data

Decline to provide sales information

Page entry logic: This page will show when: Question #37 = ("Enter values in ranges (not exact figures)")

Reporting Preferences

Logic: Hidden unless: Question #10 not in list ("Furniture wholesaler","Furniture retailer") Dynamically shown if "[question("value"), id="9"], would you prefer to:" = Enter values in ranges (not exact figures)

Shortname / Alias: SALES_Unit

Variable name: SALES_Unit

ID: 65

How would you like to report sales volumes?*

Containers

Tonnes

Logic: Dynamically shown if "[question("value"), id="9"], would you prefer to:" = Enter values in ranges (not exact figures)

Shortname / Alias: SALES_Currency

Variable name: SALES_Currency

ID: 66

In what currency would you like to report financial information?*

CNY - Chinese Yuan ('000)

EUR - Euro ('000)

GBP - Pound Sterling ('000)

IDR - Indonesian Rupiah ('0,000,000)

MYR - Malaysian Riggit ('000)

SGD - Singapore Dollar ('000)

USD - US Dollar ('000)

Other: *

ID: 171

Are the annual sales of [question("value"), id="10"]:*

Less than USD 1 million

More than USD 1 million

Page entry logic: This page will show when: Question #37 contains any ("Enter values in ranges (not exact figures)")

Financial and sales information data entry

ID: 281

Here, I will ask you some questions about [question("value"), id="10"] sales and turnover. This information is based on total sales of natural and synthetic rattan.

Validation: Min = 0 Max = 5000

Logic: Hidden unless: Question #10 not in list ("Cane processor","Cane broker","Cane transporter","Cane retailer","Furniture manufacturer","Furniture exporter","Furniture importer","Furniture transporter")

Shortname / Alias: SALES_TON_CONT

Variable name: SALES_TON_CONT

ID: 71

Annual sales volume ([question("value"), id="65"])

2002	0 _____[__]_____ 5000
2004	0 _____[__]_____ 5000
2006	0 _____[__]_____ 5000
2008	0 _____[__]_____ 5000
2010	0 _____[__]_____ 5000
2012	0 _____[__]_____ 5000

Validation: Min = 0 Max = 10000

Logic: Hidden unless: Question #10 contains any ("Furniture wholesaler","Furniture retailer")

Shortname / Alias: SALES_Volume_Retail

Variable name: SALES_Volume_Retail

ID: 255

Annual sales volume (pieces)

2002	0 _____[__]_____ 10000
2004	0 _____[__]_____ 10000
2006	0 _____[__]_____ 10000
2008	0 _____[__]_____ 10000
2010	0 _____[__]_____ 10000
2012	0 _____[__]_____ 10000

Validation: Min = 0 Max = 1000

Logic: Hidden unless: Question #40 contains any ("Less than USD 1 million")

Shortname / Alias: SALES_Value<1million

Variable name: SALES_Value<1million

ID: 73

Sales value ([question("value"), id="66"])

2002	0 _____[__]_____ 1000
2004	0 _____[__]_____ 1000
2006	0 _____[__]_____ 1000
2008	0 _____[__]_____ 1000

2010	0 _____[__]_____ 1000
2012	0 _____[__]_____ 1000

Validation: Min = 0 Max = 1000000

Logic: Hidden unless: Question #40 contains any ("More than USD 1 million")

Shortname / Alias: SALES_Value>1million

Variable name: SALES_Value>1million

ID: 172

Sales value ([question("value"), id="66"])

2002	0 _____[__]_____ 1000000
2004	0 _____[__]_____ 1000000
2006	0 _____[__]_____ 1000000
2008	0 _____[__]_____ 1000000
2010	0 _____[__]_____ 1000000
2012	0 _____[__]_____ 1000000

Validation: Min = -500 Max = 1000

Logic: Hidden unless: Question #40 contains any ("Less than USD 1 million")

Shortname / Alias: SALES_Turnover<1million

Variable name: SALES_Turnover<1million

ID: 75

Turnover (gross profit) ([question("value"), id="66"])

2002	-500 _____[__]_____ 1000
2004	-500 _____[__]_____ 1000

2006	-500 _____[__]_____ 1000
2008	-500 _____[__]_____ 1000
2010	-500 _____[__]_____ 1000
2012	-500 _____[__]_____ 1000

Validation: Min = 0 Max = 100000

Logic: Hidden unless: Question #40 contains any ("More than USD 1 million")

Shortname / Alias: SALES_Turnover>1million

Variable name: SALES_Turnover>1million

ID: 173

Turnover (gross profit) ([question("value"), id="66"])

2002	0 _____[__]_____ 100000
2004	0 _____[__]_____ 100000
2006	0 _____[__]_____ 100000
2008	0 _____[__]_____ 100000
2010	0 _____[__]_____ 100000
2012	0 _____[__]_____ 100000

Page entry logic: This page will show when: Question #37 contains any ("Upload spreadsheets or annual reports")

Financial information upload page

ID: 56

Please upload financial information, including annual sales and turnover, for each of the following years. You can upload in PDF, DOC, DOCX, XLS, XLSX, PNG, JPG or GIF

formats. For each year you can upload up to two files. I remind you that you have the option of anonymity at the end of the survey.

Validation: Accepts up to 2 files. Allowed types: png, gif, jpg, doc, xls, docx, xlsx, pdf, txt. Max file size: 1 MB

Shortname / Alias: FINANCIAL_Upload_all

Variable name: FINANCIAL_Upload_all

ID: 181

All years in one spreadsheet

1

2

Validation: Accepts up to 2 files. Allowed types: png, gif, jpg, doc, xls, docx, xlsx, pdf, txt. Max file size: 1 MB

Shortname / Alias: FINANCIAL_Upload_2002

Variable name: FINANCIAL_Upload_2002

ID: 50

2002

1

2

Validation: Accepts up to 2 files. Allowed types: png, gif, jpg, doc, xls, docx, xlsx, pdf, txt. Max file size: 1 MB

Shortname / Alias: FINANCIAL_Upload_2004

Variable name: FINANCIAL_Upload_2004

ID: 51

2004

1

2

Validation: Accepts up to 2 files. Allowed types: png, gif, jpg, doc, xls, docx, xlsx, pdf, txt. Max file size: 1 MB

Shortname / Alias: FINANCIAL_Upload_2006

Variable name: FINANCIAL_Upload_2006

ID: 52

2006

1

2

Validation: Accepts up to 2 files. Allowed types: png, gif, jpg, doc, xls, docx, xlsx, pdf, txt. Max file size: 1 MB

Shortname / Alias: FINANCIAL_Upload_2008

Variable name: FINANCIAL_Upload_2008

ID: 53

2008

1

2

Validation: Accepts up to 2 files. Allowed types: png, gif, jpg, doc, xls, docx, xlsx, pdf, txt. Max file size: 1 MB

Shortname / Alias: FINANCIAL_Upload_2010

Variable name: FINANCIAL_Upload_2010

ID: 54

2010

1

2

Validation: Accepts up to 2 files. Allowed types: png, gif, jpg, doc, xls, docx, xlsx, pdf, txt. Max file size: 1 MB

Shortname / Alias: FINANCIAL_Upload_2012

Variable name: FINANCIAL_Upload_2012

ID: 55

2012

1

2

Page entry logic: This page will show when: Question #37 contains any ("Refer to a website that has this data")

Web site reference for sales information

Shortname / Alias: FINANCIAL_web_link

Variable name: FINANCIAL_web_link

ID: 122

Please indicate the website where I can download [question("value"), id="10"] sales volume and values.

Page entry logic: This page will show when: Question #37 contains any ("Decline to provide sales information")

Sales Perspective

ID: 282

Okay, [question("value"), id="9"] , you have said that you don't want to give any sales or financial information, so I will simply ask you here about your general perspective on [question("value"), id="10"] 's natural and synthetic rattan sales.

Validation: Min = -100 Max = 100

Shortname / Alias: SALES_Compared_to_previous_Rattan

Variable name: SALES_Compared_to_previous_Rattan

ID: 164

Please let me know whether [question("value"), id="10"]'s natural rattan sales in each year were better or worse than the previous year.

2013 compared to 2012	-100 _____[__]_____ 100
2012 compared to 2011	-100 _____[__]_____ 100
2011 compared to 2010	-100 _____[__]_____ 100
2010 compared to 2009	-100 _____[__]_____ 100
2009 compared to 2008	-100 _____[__]_____ 100
2008 compared to 2007	-100 _____[__]_____ 100

2007 compared to 2006	-100 _____[__]_____ 100
2006 compared to 2005	-100 _____[__]_____ 100
2005 compared to 2004	-100 _____[__]_____ 100
2004 compared to 2003	-100 _____[__]_____ 100

Validation: Min = -100 Max = 100

Logic: Hidden unless: Question #9 contains any ("Yes")

Shortname / Alias: SALES_Compared_to_previous_Synthetic

Variable name: SALES_Compared_to_previous_Synthetic

ID: 299

Please let me know whether [question("value"), id="10"]'s synthetic rattan sales in each year were better or worse than the previous year.

2013 compared to 2012	-100 _____[__]_____ 100
2012 compared to 2011	-100 _____[__]_____ 100
2011 compared to 2010	-100 _____[__]_____ 100
2010 compared to 2009	-100 _____[__]_____ 100
2009 compared to 2008	-100 _____[__]_____ 100
2008 compared to 2007	-100 _____[__]_____ 100
2007 compared to 2006	-100 _____[__]_____ 100
2006 compared to 2005	-100 _____[__]_____ 100

2005 compared to 2004	-100 _____[__]_____ 100
2004 compared to 2003	-100 _____[__]_____ 100

Cost of business breakdown

ID: 279

[question("value"), id="9"], on this page, I ask you about some basic costing questions (in percentages only) to get a better idea of how benefits are distributed in furniture production and what resources are required to produce rattan and synthetic rattan furniture.

Validation: Min = 0 Max = 100

Logic: Hidden by default Hidden unless: Question #10 contains any ("Furniture retailer")

ID: 309

What percentage of [question("value"), id="10"]'s sales are made online?

0 _____[__]_____ 100

Validation: Must be percentage Using custom RegEx pattern

Logic: Hidden unless: (Question #7 contains any ("Yes") AND Question #10 contains any ("Cane processor","Cane broker","Cane transporter","Cane retailer","Furniture manufacturer"))

Shortname / Alias: Expenses_Rattan_Level_1

Variable name: Expenses_Rattan_Level_1

ID: 259

Please tell me how price of natural rattan products break down, in general (by percentage).

Materials (Rattan)

Materials (Non-rattan)

Labour (Wages, benefits, employment tax)

Transportation

Operations (Rent, electricity, maintenance)

Capital reserves (for the purchase of new equipment or facilities)

Transaction fees (bank fees)

Taxes & Duties

Overhead (Office, marketing, administration costs)

Profit

Other

Validation: Must be percentage Using custom RegEx pattern

Logic: Hidden unless: (Question #9 contains any ("Yes") AND Question #10 contains any ("Furniture manufacturer"))

Shortname / Alias: Expenses_Synthetic_Level_1

Variable name: Expenses_Synthetic_Level_1

ID: 260

Please tell me how price of synthetic rattan products break down, in general (by percentage).

Materials (Synthetic Rattan)

Materials (Other)

Labour (Wages, benefits, employment tax)

Transportation

Operations (Rent, electricity, maintenance)

Capital reserves (for the purchase of new equipment or facilities)

Transaction fees (bank fees)

Taxes & Duties

Overhead (Office, marketing, administration costs)

Profit

Other

Validation: Min = 0 Max = 100

Logic: Hidden by default Hidden unless: (Question #7 contains any ("Yes") AND Question #10 contains any ("Furniture exporter","Furniture importer","Furniture transporter","Furniture wholesaler","Furniture retailer"))

Shortname / Alias: Percent_Profit_Level_2_Rattan

Variable name: Percent_Profit_Level_2_Rattan

ID: 306

On average, what percentage of your selling price of natural rattan furniture is profit?

0 _____[__]_____ 100

Validation: Min = 0 Max = 100

Logic: Hidden by default Hidden unless: (Question #9 contains any ("Yes") AND Question #10 contains any ("Furniture exporter","Furniture importer","Furniture transporter","Furniture wholesaler","Furniture retailer"))

Shortname / Alias: Percent_Profit_Level_2_Synthetic

Variable name: Percent_Profit_Level_2_Synthetic

ID: 307

On average, what percentage of your selling price of synthetic rattan furniture is profit?

0 _____[__]_____ 100

Validation: Min = 1 Max = 200

Logic: Hidden unless: Question #10 contains any ("Furniture manufacturer")

Shortname / Alias: Expenses_Person-hours_per_chair_rattan

Variable name: Expenses_Person-hours_per_chair_rattan

ID: 264

On average, how many person-hours does it take to finish the manufacturing of a single natural rattan chair?

1 _____[__]_____ 200

Validation: Min = 1 Max = 200

Logic: Hidden unless: (Question #10 contains any ("Furniture manufacturer") AND Question #9 contains any ("Yes"))

Shortname / Alias: Expenses_Person-hours_per_chair_synthetic

Variable name: Expenses_Person-hours_per_chair_synthetic

ID: 308

On average, how many person-hours does it take to finish the manufacturing of a single synthetic rattan chair?

1 _____[__]_____ 200

Validation: Min = 50 Max = 2000

Logic: Hidden unless: Question #10 contains any ("Furniture manufacturer","Furniture exporter","Furniture importer")

Shortname / Alias: Expenses_Pieces_per_container

Variable name: Expenses_Pieces_per_container

ID: 265

On average, how many pieces does [question("value"), id="10"] ship in a container?

50 _____[__]_____ 2000

Changes to [question("value"), id="10"]

ID: 285

Okay, that's enough on sales and costs. Thanks [question("value"), id="9"]. I would like to take a moment to ask you about any changes that [question("value"), id="10"] has experience in the rattan industry. The answers to these questions give me an idea of what is going on and how [question("value"), id="10"] has adapted to the changes.

Logic: Show/hide trigger exists. Hidden unless: Question #7 contains any ("No")

Shortname / Alias: EVENT_WHEN_STOPPED

Variable name: EVENT_WHEN_STOPPED

ID: 90

What happened to [question("value"), id="10"] after it stopped being a [question("value"), id="253"] of natural rattan products?

Went out of business

Changed to a new alternative product

Moved business to another country

Retired

Sold business

Continued operations with other existing products

Other:

Logic: Hidden by default Dynamically shown if "What happened to [question("value"), id="10"] after it stopped being a [question("value"), id="253"] of natural rattan products?" = Moved business to another country

Shortname / Alias: ALTERNATIVE_Country

Variable name: ALTERNATIVE_Country

ID: 284

To what country did [question("value"), id="10"] relocate?

[Country List]

Validation: Min = -50 Max = 50

Shortname / Alias: CHANGES_Synthetic_ot

Variable name: CHANGES_Synthetic_ot

ID: 97

Are new or alternative products like synthetic rattan a threat or an opportunity for [question("value"), id="10"]?

-50 _____[__]_____ 50

Logic: Hidden unless: Question #10 contains any ("Furniture manufacturer","Furniture exporter","Furniture importer","Furniture wholesaler","Furniture retailer")

Shortname / Alias: Consumer_preferences

Variable name: Consumer_preferences

ID: 269

Which of the following do you think are the most important to consumers in making a decision to purchase furniture?

Price

Colour

Social responsibility

Environmental responsibility

Construction quality

Ease of maintenance

Construction material

Comfort

Match with other items

Brand

Uniqueness

Versatility

Safety

Style

Naturalness

Practicality

Comments:

Validation: Min = 0 Max = 100

Logic: Hidden unless: Question #10 contains any ("Furniture manufacturer","Furniture exporter","Furniture importer","Furniture wholesaler","Furniture retailer")

Shortname / Alias: Future_materials

Variable name: Future_materials

ID: 280

What is the likelihood that [question("value"), id="10"] will be a [question("value"), id="253"] of furniture with the following materials in five years?

Natural rattan	0 _____[__]_____ ___ 100

Other natural fibres (banana, water hyacinth etc)	0 _____[__]_____ ___ 100
Leather	0 _____[__]_____ ___ 100
Wood	0 _____[__]_____ ___ 100
Bamboo	0 _____[__]_____ ___ 100
Synthetic rattan	0 _____[__]_____ ___ 100
Synthetic other fibres	0 _____[__]_____ ___ 100
Synthetic leather	0 _____[__]_____ ___ 100
Plastic (other than synthetic rattan and fibres)	0 _____[__]_____ ___ 100
Upholstery (other than leather or synthetic leather)	0 _____[__]_____ ___ 100

Rattan industry changes

ID: 287

[question("value"), id="9"], I would now like to ask you some questions about the natural and synthetic rattan industries over the past several years.

Validation: Min = -100 Max = 100

Logic: Hidden unless: Question #10 contains any ("Cane processor","Cane broker","Cane retailer","Furniture manufacturer","Furniture exporter","Furniture importer","Furniture wholesaler","Furniture retailer")

Shortname / Alias: INDUSTRY_Changes

Variable name: INDUSTRY_Changes

ID: 194

What changes has [question("value"), id="10"] seen in the natural rattan industry in the last

five years?

Competition	-100 _____[__]_____ 100
Consumer awareness of rattan	-100 _____[__]_____ 100
Consumer demand	-100 _____[__]_____ 100
Costs of production	-100 _____[__]_____ 100
Ease of obtaining inputs	-100 _____[__]_____ 100
Ease of regulatory restrictions	-100 _____[__]_____ 100
Innovation of design	-100 _____[__]_____ 100
Product diversification	-100 _____[__]_____ 100
Quality of products	-100 _____[__]_____ 100
Sale price	-100 _____[__]_____ 100
Cost of rattan cane	-100 _____[__]_____ 100

Comments:

Variable name: INDUSTRY_CHANGE_other

ID: 104

If [question("value"), id="10"] has experienced other changes, please mention them here:

Validation: Min = -500 Max = 500

Logic: Hidden unless: (Question #10 contains any ("Cane processor","Cane broker","Cane retailer","Furniture manufacturer") AND Question #17 not in list

("2010","2009","2008","2007","2006","2005","2004","2003"))

Shortname / Alias: CHANGE_Cane_Price

Variable name: CHANGE_Cane_Price

ID: 293

How much has the price of rattan cane changed in the following years?

2004 compared to 2005	-500 _____[__]_____ 500
2005 compared to 2006	-500 _____[__]_____ 500
2006 compared to 2007	-500 _____[__]_____ 500
2007 compared to 2008	-500 _____[__]_____ 500
2008 compared to 2009	-500 _____[__]_____ 500
2009 compared to 2010	-500 _____[__]_____ 500
2010 compared to 2011	-500 _____[__]_____ 500
2011 compared to 2012	-500 _____[__]_____ 500
2012 compared to 2013	-500 _____[__]_____ 500

Validation: Min = -500 Max = 500

Logic: Hidden unless: (Question #10 contains any ("Furniture manufacturer","Furniture exporter","Furniture importer","Furniture wholesaler","Furniture retailer") AND Question #17 not in list ("2010","2009","2008","2007","2006","2005","2004","2003"))

Shortname / Alias: CHANGE_Furniture_Price

Variable name: CHANGE_Furniture_Price

ID: 294

How much has the price of natural rattan furniture changed in the following years?

2004 compared to 2005	-500 _____[__]_____ 500
2005 compared to 2006	-500 _____[__]_____ 500
2006 compared to 2007	-500 _____[__]_____ 500
2007 compared to 2008	-500 _____[__]_____ 500
2008 compared to 2009	-500 _____[__]_____ 500
2009 compared to 2010	-500 _____[__]_____ 500
2010 compared to 2011	-500 _____[__]_____ 500
2011 compared to 2012	-500 _____[__]_____ 500
2012 compared to 2013	-500 _____[__]_____ 500

Validation: Min = -500 Max = 500

Logic: Hidden unless: (Question #10 contains any ("Furniture manufacturer","Furniture exporter","Furniture importer","Furniture wholesaler","Furniture retailer") AND Question #9 contains any ("Yes"))

Shortname / Alias: CHANGE_Furniture_Price_Synthetic

Variable name: CHANGE_Furniture_Price_Synthetic

ID: 303

How much has the price of synthetic rattan furniture changed in the following years?

2004 compared to 2005	-500 _____[__]_____ 500
2005 compared to 2006	-500 _____[__]_____ 500

2006 compared to 2007	-500 _____[__]_____ 500
2007 compared to 2008	-500 _____[__]_____ 500
2008 compared to 2009	-500 _____[__]_____ 500
2009 compared to 2010	-500 _____[__]_____ 500
2010 compared to 2011	-500 _____[__]_____ 500
2011 compared to 2012	-500 _____[__]_____ 500
2012 compared to 2013	-500 _____[__]_____ 500

Validation: Min = -10 Max = 10

Logic: Hidden unless: Question #10 contains any ("Furniture manufacturer","Furniture exporter","Furniture importer","Furniture wholesaler","Furniture retailer")

Shortname / Alias: PROFITABILITY_Compare

Variable name: PROFITABILITY_Compare

ID: 211

Which is more profitable, synthetic rattan or natural rattan?

-10 _____[__]_____ 10

Logic: Show/hide trigger exists.

Shortname / Alias: CHANGE_strategies

Variable name: CHANGE_strategies

ID: 288

What strategies has [question("value"), id="10"] used to adjust to changing business and market conditions?

Diversify products

Renegotiate supplier services or terms

Change buyers

Move operations to another location

Reduce number of employees

Increase number of employees

Change technologies used for production

Change to or focus on other products

Develop new designs

Obtain credit to change or improve operations

Change methods of production

Modify operations to reduce expenses

Reduce salaries / benefits

Increase salaries / benefits

Train employees

Increase marketing

Conduct market research

Other:

Logic: Hidden by default Dynamically shown if "What happened to [question("value"), id="10"] after it stopped being a [question("value"), id="253"] of natural rattan products?" = Changed to a new alternative product or "What happened to [question("value"), id="10"] after it stopped being a [question("value"), id="253"] of natural rattan products?" = Continued operations with other existing products or "What strategies has [question("value"), id="10"] used to adjust to changing business and market conditions?" = Change to or focus on other products

Shortname / Alias: ALTERNATIVE_PRODUCT

Variable name: ALTERNATIVE_PRODUCT

ID: 283

You mentioned that [question("value"), id="10"] changed, or increased focus on an alternative product. What products did [question("value"), id="10"] start producing or focus on?

Synthetic rattan furniture

Synthetic fibre furniture

Synthetic leather furniture

Plastic furniture

Metal furniture

Other upholstered furniture

Leather furniture

Wood furniture

Bamboo furniture

Other natural fibre furniture:

Other non-furniture product:

Rattan industry policy changes

ID: 300

This page is about the effects of national and domestic policies that may have affected [question("value"), id="10"]'s business.

Validation: Min = -100 Max = 100

Shortname / Alias: POLICY_Impact

Variable name: POLICY_Impact

ID: 117

How much have the following policy changes or certification movements impacted [question("value"), id="10"]'s business?

US Lacey Act 2008 demands traceability of forest products	-100 _____[__]_____ ___ 100
Indonesia 2011 prohibition of export of rattan cane	-100 _____[__]_____ ___ 100
Fair Trade Certification	-100 _____[__]_____ ___ 100
Forrest Stewardship Council	-100 _____[__]_____ ___ 100
Rainforest Alliance Certification	-100 _____[__]_____ ___ 100
Other	-100 _____[__]_____ ___ 100

Comments:

The future of the rattan industry

ID: 301

Okay [question("value"), id="9"], this is the last section of rattan questions. Here, I ask you about the future the of rattan industry.

Validation: Min = -100 Max = 100

Shortname / Alias: OPTIMISM

Variable name: OPTIMISM

ID: 92

Do you think that in five (5) years, the natural rattan industry will be better or worse than it is now?

-100 _____[__]_____ 100

Validation: Min = -100 Max = 100

Logic: Show/hide trigger exists.

Shortname / Alias: FUTURE_Material_predictions

Variable name: FUTURE_Material_predictions

ID: 110

What do you think will happen to the market share of the following products in the next five (5) years?

Synthetic rattan	-100 _____[__]_____ _ 100
Other natural fibres (hyacinth, banana etc)	-100 _____[__]_____ _ 100
Certified wood	-100 _____[__]_____ _ 100
Other synthetic materials	-100 _____[__]_____ _ 100
Other natural materials	-100 _____[__]_____ _ 100
Natural rattan	-100 _____[__]_____ _ 100

Logic: Dynamically shown if "What do you think will happen to the market share of the following products in the next five (5) years?" = Other natural fibres (hyacinth, banana etc) or "What do you think will happen to the market share of the following products in the next five (5) years?" = Other synthetic materials or "What do you think will happen to the market

share of the following products in the next five (5) years?" = Other natural materials

Shortname / Alias: CHANGE_Other

Variable name: CHANGE_Other

ID: 118

Please write any comments here.

Shortname / Alias: FUTURE_suggestions

Variable name: FUTURE_suggestions

ID: 120

Which of the following actions should be taken in the natural rattan industry?

Please drag you selection from the left to the right column and order them from most important to least important

Enable better international trade legislation

Ensure traceability of rattan

Reduce trade barriers

Organise better as a trade association

Improve quality control management of semi-processed rattan

Improve quality control management of rattan furniture

Diversify rattan products available in the market

Improve marketing of rattan as a product

Other

Shortname / Alias: SOLUTION_Other_comment

Variable name: SOLUTION_Other_comment

ID: 121

If you mentioned another action, please comment.

Referrals List

Okay [question("value"), id="9"], we are almost finished. The remaining questions are about how you would like me to handle your information and whether or not you can think of other companies or contacts who would be interested in the survey.

Validation: Min. answers = 1 (if answered)

Shortname / Alias: REFERRAL_Companies

Variable name: REFERRAL_Companies

ID: 174

Can you think of any other companies that might be interested to participate in this survey? Please enter the names of up to five companies here.

These companies could be suppliers, buyers, competitors or any other type of company that does, or used to do, business with rattan. If you want to recommend even more companies, you can send them to me by e-mail at rodd.myers@uea.ac.uk.

1:

2:

3:

4:

5:

Logic: Hidden by default Hidden unless: Question #21 is answered

ID: 304

You have already mentioned [question("value"), id="4"], so there is no need to mention them again.

Referral: [page("piped title")]

Shortname / Alias: REFERRAL_Contact_name

Variable name: REFERRAL_Contact_name

ID: 176

Please enter the name of a contact person at [page("piped title")].

Shortname / Alias: REFERRAL_MS-MR-DR

Variable name: REFERRAL_MS-MR-DR

ID: 291

Title

Ms

Mr

Dr

Validation: %s format expected

Shortname / Alias: REFERRAL_Contact_email

Variable name: REFERRAL_Contact_email

ID: 175

Please enter a contact e-mail address for [page("piped title")].

Shortname / Alias: REFERRAL_Country

Variable name: REFERRAL_Country

ID: 267

In what country is [page("piped title")]'s headquarters?

[Country List]

Logic: Require when

Shortname / Alias: REFERENCE_mention_consent

Variable name: REFERENCE_mention_consent

ID: 268

I may wish to follow up with [page("piped title")]. Would it be okay if I mentioned that you referred me?

Mentioning that someone [page("piped title")] knows referred them to the survey, helps the response rate. If you say "No" I will not mention your name or your company's name in any way to [page("piped title")].

Yes

No

Confidentiality

On this page, I will ask you about how confidential you would like me to keep your responses. I will not use your personal name in any instance, so confidentiality is only about the name of your company.

Logic: Show/hide trigger exists.

Shortname / Alias: CONFIDENTIALITY_Terms

Variable name: CONFIDENTIALITY_Terms

ID: 76

How would you like me to treat your responses?*

My responses can be associated to the company.

My responses (except financial) can be associated to the company.

The name of the company cannot be used in the research.

Logic: Dynamically shown if "How would you like me to treat your responses?" = My responses can be associated to the company. or "How would you like me to treat your responses?" = My responses (except financial) can be associated to the company. or "How would you like me to treat your responses?" = The name of the company cannot be used in

the research.

ID: 149

Okay, I accept your terms of confidentiality. In case I need to follow up with you, or include [question("value"), id="11"] in my interviews, I would like to ask for your contact details and the real name of your company.

Shortname / Alias: CONTACT_Name

Variable name: CONTACT_Name

ID: 150

Contact Name*:

Shortname / Alias: CONTACT_MS-MR-DR

Variable name: CONTACT_MS-MR-DR

ID: 292

Title

Ms

Mr

Dr

Shortname / Alias: CONTACT_Position

Variable name: CONTACT_Position

ID: 151

Position:

Shortname / Alias: CONTACT_Company

Variable name: CONTACT_Company

ID: 152

Company Name*:

Validation: %s format expected

Shortname / Alias: CONTACT_Email

Variable name: CONTACT_Email

ID: 154

E-mail Address:

Shortname / Alias: CONTACT_Phone

Variable name: CONTACT_Phone

ID: 155

Phone number:

Page entry logic: This page will show when: Question #37 contains any ("Decline to provide sales information")

Financial and sales information confidentiality check

Logic: Show/hide trigger exists.

ID: 80

[question("value"), id="9"], you indicated that you did not want to provide sales or financial information. Is that because you are concerned about the confidentiality of the data?

Yes

No

Logic: Dynamically shown if "[question("value"), id="9"], you indicated that you did not want to provide sales or financial information. Is that because you are concerned about the confidentiality of the data?" = Yes

ID: 81

Okay, I can understand that [question("value"), id="10"]'s financial details are sensitive. I would like to send you to a link to a totally anonymous version of the sales and financial part of the survey. Not even I will know who submitted the information, and I will not ask for any identification data. I will only ask you what your role is in rattan and your sales, and turnover information. Would you be open to submitting sales and financial data in this way?

The reason I ask about sales and financial information over time is to try to see trends in the industry and whether or not policy changes have an impact on your financials and sales. Without this information, it is hard to link policy changes with the profitability of companies.

Yes

No

Closing Comments

Okay [question("value"), id="9"], we are all finished with the survey. A few quick questions about any final comments you might have.

Logic: Show/hide trigger exists.

Shortname / Alias: REQUEST_Analysis

Variable name: REQUEST_Analysis

ID: 123

Would you like me to send you a summary of this survey after all the responses have been analysed?

Note that this may take several months for me to get the summary to you.

Yes

No

ID: 202

Would you like me to send you your responses to this survey in PDF?

Yes

No

Shortname / Alias: FINAL_COMMENTS

Variable name: FINAL_COMMENTS

ID: 127

If you have any final comments, please make them here.

Page entry logic: This page will show when: (Question #89 contains any ("Yes") OR Question #90 contains any ("Yes"))

Address to send results

Logic: Hidden by defaultShow/hide trigger exists. Hidden unless: Question (ID 154) is answered Dynamically shown if "Would you like me to send you a summary of this survey after all the responses have been analysed?" = Yes

ID: 124

Would you like me to send the results to [question("value"), id="154"]?

Yes

No

Logic: Hidden by defaultShow/hide trigger exists. Hidden unless: Question (ID 154) is not answered Dynamically shown if "Would you like me to send you a summary of this survey after all the responses have been analysed?" = Yes

ID: 126

Sorry, [question("value"), id="9"]. I see that you have chosen not to provide me an e-mail address. Would you like to add one now so that I can send you the results?

Yes

No

Validation: %s format expected

Logic: Hidden by default Dynamically shown if "Would you like me to send the results to [question("value"), id="154"]?" = No or "Sorry, [question("value"), id="9"]. I see that you have chosen not to provide me an e-mail address. Would you like to add one now so that I can send you the results?" = Yes

Shortname / Alias: ALT_EMAIL

Variable name: ALT_EMAIL

ID: 125

Please enter the e-mail address to which you would prefer that I send the summary.

Thank You

ID: 1

Thank you for taking my survey. Your response is very important to my research and I hope that it will be of benefit to the rattan industry. If you have an questions or follow up information, please contact me at rodd.myers@uea.ac.uk. You can also leave anonymous feedback for me at feedback.rattansurvey.com.

Logic: Hidden unless: Question #88 contains any ("Yes")

ID: 129

[question("value"), id="9"], you suggested that you would be interested in an anonymous financial section. I will now forward you to that survey. I will not be able to follow up with you because I will have no way of knowing who completed the survey, so thanks in advance.

Email action: E-mail review of responses to respondent

To: [question("value"), id="150"] ([question("value"), id="154"])
From: Rodd Myers (rodd.myers@uea.ac.uk)
Subject: Rattan survey responses

Action: URL Redirect: Direct to anonymous financial survey

Appendix F: Rattan cane classification

One of the reasons there are no clear standards is that the characteristics differ from one species to another, so it may be more appropriate to make species-specific standards, but for the purpose of this study, I use Indonesian classifications from A to D, which are grouped in twos to make three categories: AB, BC, and CD. Quality is primarily about colour and defects. There is a negative correlation between colour and hardness and inter-nodal length and hardness. Darker canes are usually harder because they are older and smaller inter-nodal spacing signifies stronger, harder rattan. Therefore, if a buyer wants hardness, s/he may have to sacrifice whiteness or accept more nodes. Prices vary depending on the classification, size and variety of rattan. I exclude rattan with peel from this classification because colour classifications and tolerance for defects differ from polished rattan.

Polished large-diameter rattan cane classification- a comparison of Bhat (1996) and Indonesian industry

Grade		Colour	Colour uniformity	Inter-nodal length	Permissible defects as a % of length[94]	Hardness	Length
Bhat	***Indonesia***	***Both***	***Both***	***Both***	***Both***	***Indonesia***	***Indonesia***
Super	A	ivory- white, cream or yellowish	uniformly bright or lustrous surfaces	Bhat: > 100 mm Indonesia: > 200 mm	0	Hard	3m
I	B	ivory- white, cream or yellowish	uniformly bright surfaces	Bhat: > 100 mm Indonesia: > 150 mm	=<15%	Medium-hard	2m
II	C	ivory-white, cream or brownish	-	Bhat: > 100 mm Indonesia: > 150 mm	=<50%	Medium-soft	1.5m
III	D	whitish, yellowish, brown or dark brown	-	Bhat: > 50 mm Indonesia: > 100 mm	=<75%	Soft	-

Adapted from Bhat (1996)

94. Typical defects include curves, blemishes, breaks, checks, holes, scars and shakes (Bhat 1996).

There are a few other characteristics, such as taper, that Bhat discusses and are corroborated by Indonesian producers. Taper (the difference in diameter between any two points in the cane) is already standardised at less than 4mm. Any variance greater than that on a full length cane has to be re-sanded to meet an acceptable standard for export furniture, no matter the grade. Another characteristic, which is only considered by the most knowledgable and discerning of buyers, is that of elasticity. Quality cane of all sizes and species can be stretched for several centimetres and will reconcentrate after pulling forces are ceased. This test is more easily performed on cane prepared for webbing, but it applies to full cane as well. High elasticity allows for tighter webbing and better shaping of cane. I have not included elasticity in the quality standards as it is not well known and difficult to test on full cane.

Appendix G: Furniture market survey

The structured survey was designed in Survey Gizmo[95] as an on-line survey. It included branching and piping logic that is difficult to portray on paper. Many questions were conditional on previous responses. In this Appendix, I provide the survey as it is exported from Survey Gizmo. Since the survey used dynamic logic, it does not read that well as a paper survey, but I have retained the logical rules that were applied so an interested reader can see how logic was applied in the survey. The survey text and logic is as follows:

Introduction
We extended the deadline!

Thank you for your interest in providing your thoughts on the 2015 IFFINA furniture fair in Jakarta March 14-17, 2015 and a little bit about the furniture industry more generally. This survey is conducted jointly by IFFINA 2015 organisers (ASMINDO) the University of East Anglia, UK.

This means that:
1. Your participation is voluntary
2. All your responses will be completely anonymous
3. The IFFINA 2015 organisers (ASMINDO) will receive compiled information to cater the event to the expectations of participants
4. Compiled responses will be used for research purposes to better understand certain aspects of the furniture industry

The survey will only take 10 to 15 minutes and you can save and come back to it any time* before September 19, 2014. Most questions are optional, so if you don't want to answer it, you can skip it.

Your responses will be helpful to us even if you have never attended IFFINA before or do not plan on coming to IFFINA 2015 (although we hope you do).

* The save and continue feature requires your e-mail address, which is not associated with your responses and does not affect your anonymity.

You can complete this survey on your computer, tablet, or smartphone, but smartphone users may find some questions difficult because of formatting. If you turn on screen-rotation, they may be easier, or you can simply skip these questions, but computers and tablets are recommended.

Logic: Show/hide trigger exists.
ID: 31
1) Would you like more information?
( ) Yes
( ) No

Logic: Hidden by default Dynamically shown if "Would you like more information?" = Yes
ID: 33

95. http://www.surveygizmo.com

This survey is undertaken jointly by ASMINDO and Rodd Myers, a PhD researcher at the University of East Anglia researching the furniture industry. Your responses will be used anonymously to understand perspectives on the furniture industry and how the Indonesian furniture industry is organised. This survey is implemented under the Ethical Policies of the University to ensure your data is protected. If you have questions pertaining to the research, you can e-mail rodd.myers@uea.ac.uk. Mr Myers has made agreements with ASMINDO to analyse and share anonymous feedback to help them to ensure IFFINA 2015 meets your expectations and to help its members to be more competitive in the global furniture market.

Logic: Show/hide trigger exists.
ID: 32
2) Do you agree to proceed with the survey?*
( ) Yes
( ) No
Logic: Hidden by default Dynamically shown if "Do you agree to proceed with the survey?" = Yes

ID: 140
Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:*
[ ] I/ we buy or import furniture from Indonesia
[ ] I/we produce or export furniture from Indonesia

Logic: Hidden by default Dynamically shown if "Do you agree to proceed with the survey?" = Yes
ID: 155
In what country is your company's headquarters?
[Country list]

Logic: Hidden unless: Question "In what country is your company's headquarters?" is one of the following answers ("Indonesia")
ID: 158
3) Is your company a member of ASMINDO?
( ) Yes
( ) No

Page entry logic: This page will show when: Question "Do you agree to proceed with the survey?" #2 is one of the following answers ("No")
Termintation
ID: 147
Sorry, we need your consent in order to proceed with the survey. Thank you for your interest.

IFFINA and you
ID: 142
4) Are you thinking of attending IFFINA 2015 in Jakarta?
( ) Yes
( ) No

ID: 145
5) Did you attend IFFINA 2014?
( ) Yes

( ) No
( ) Not sure

ID: 148
6) Did you attend IFFINA 2013 or earlier?
( ) Yes
( ) No
( ) Not sure

Page entry logic: This page will show when: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/ we buy or import furniture from Indonesia")
2015 Asia Furniture Fairs

Shortname / Alias: FAIRS_other
ID: 3
7) Which of the following other Asian furniture fairs do you plan to attend in 2015?
If none, leave blank.
[ ] MIFF. Malaysian International Furniture Fair Malaysia, Kuala Lumpur
[ ] Modern Furniture Fair. Thailand, Bangkok
[ ] VIFA. Vietnam International Furniture & Home Accessories Fair Vietnam, Ho Chi Minh
[ ] TIFF. Thailand International Furniture Fair Thailand, Bangkok
[ ] IFFS / AFS. International Furniture Fair Singapore - ASEAN Furniture Show , Singapore
[ ] PIFS. Philippines International Furniture Show Philippines, Manila
[ ] 3F Furniture Fair. International Famous Furniture Fair. China, Houjie, DongGuan
[ ] IDFF. International Dragon Furniture Fair. China, Shunde
[ ] CIFF Home Furniture. China International Furniture Fair China, Guangzhou

Page entry logic: This page will show when: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/ we buy or import furniture from Indonesia")
Buyer: Product sourcing

ID: 35
8) What kinds of materials are you looking for in furniture?
[ ] Wood
[ ] Bamboo
[ ] Natural rattan
[ ] Metal
[ ] Plastic (other than synthetic rattan or leather)
[ ] Glass
[ ] Concrete or stone
[ ] Synthetic rattan
[ ] Other natural material
[ ] Upholstered
[ ] Leather
[ ] Synthetic leather

ID: 12

9) In order of importance, how would you describe the style of furniture that you are looking to buy?
_____Rustic
_____Ethnic
_____Modern
_____Traditional
_____Eclectic
_____Minimalist

ID: 84
10) Which market segments does your company target?
_____Residential indoor
_____Residential outdoor
_____Commercial office indoor
_____Commercial restaurant and hotel indoor
_____Commercial restaurant and hotel outdoor
_____Public spaces indoor
_____Public spaces outdoor

ID: 15
11) In order of importance, what will you look for in Indonesian furniture fairs?
_____Seats of wood
_____Seats of rattan
_____Seats of other material
_____Bedroom sets of wood
_____Bedroom sets of rattan
_____Bedroom sets of other material
_____Tables of wood
_____Tables of rattan
_____Tables of other material
_____Living room furniture of wood
_____Living room furniture of rattan
_____Living room furniture of other material
_____Other furniture of wood
_____Other furniture of rattan
_____Other furniture of other material
_____Accessories

ID: 129
12) How much of your furniture supply do you source from Indonesia? (express in percentage)

2015 (next year)	0 _____[__]_____ _ 100
2014 (this year)	0 _____[__]_____ _ 100
2013	0 _____[__]_____ _ 100

2012	0 _____[__]_____ _ 100
2011	0 _____[__]_____ _ 100
2010	0 _____[__]_____ _ 100

ID: 17
13) In order of importance, which of the following are most important in making a decision to purchase furniture?
_____Price
_____Colour
_____Social responsibility
_____Environmental responsibility
_____Construction quality
_____Ease of maintenance
_____Construction material
_____Comfort
_____Match with other items
_____Brand
_____Uniqueness
_____Versatility
_____Safety
_____Style
_____Naturalness
_____Practicality
_____Ease of doing business
Comments:

ID: 88
14) In order of importance, what are Indonesia's strengths or advantages in the global furniture Industry?
_____Price
_____Colour
_____Social responsibility
_____Environmental responsibility
_____Construction quality
_____Ease of maintenance
_____Construction material
_____Comfort
_____Match with other items
_____Brand
_____Uniqueness
_____Versatility
_____Safety
_____Style
_____Naturalness
_____Practicality

_____Ease of doing business
Comments:

ID: 89
15) In order of importance, what influences your decision to purchase from a specific supplier? The supplier:
_____Has a good reputation
_____Is a big supplier
_____Is a small supplier
_____Can customise the product to meet my needs
_____Shares and treats information confidentially
_____Has worked with my company or companies I know for a long time
_____Has good expertise about their product
_____Can deliver what I need
_____Has likeable representatives
_____Has similar interests or perspectives with my company
_____Communicates pro-actively
_____Communicates clearly in my language
_____Communicates frequently
_____Has the capacity to deliver the product
_____Offers a good price
_____Has a product that meets my quality or performance needs
_____Has delivered product for my company before

ID: 90
16) If you have any other comments on this section, please write them here.

Page entry logic: This page will show when: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is exactly equal to ("I/we produce or export furniture from Indonesia")
Seller information

ID: 104
17) What kinds of materials is the furniture you sell made of?
[ ] Wood
[ ] Bamboo
[ ] Natural rattan
[ ] Metal
[ ] Plastic (other than synthetic rattan or leather)
[ ] Glass
[ ] Concrete or stone
[ ] Synthetic rattan
[ ] Other natural material
[ ] Upholstered
[ ] Leather
[ ] Synthetic leather

ID: 105
18) In order of importance, how would you describe the style of furniture that you sell?
_____Rustic
_____Ethnic

_____Modern
_____Traditional
_____Eclectic
_____Minimalist

ID: 106
19) Which market segments does your company target?
_____Residential indoor
_____Residential outdoor
_____Commercial office indoor
_____Commercial restaurant and hotel indoor
_____Commercial restaurant and hotel outdoor
_____Public spaces indoor
_____Public spaces outdoor

ID: 107
20) In order of importance, what specific types of furniture to you sell?
_____Seats of wood
_____Seats of rattan
_____Seats of other material
_____Bedroom sets of wood
_____Bedroom sets of rattan
_____Bedroom sets of other material
_____Tables of wood
_____Tables of rattan
_____Tables of other material
_____Living room furniture of wood
_____Living room furniture of rattan
_____Living room furniture of other material
_____Other furniture of wood
_____Other furniture of rattan
_____Other furniture of other material
_____Accessories

Page entry logic: This page will show when: (Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/we produce or export furniture from Indonesia") AND Question "Did you attend IFFINA 2014?" #5 is one of the following answers ("Yes"))
IFFINA 2014 Review (Sellers)

Logic: Show/hide trigger exists.
ID: 93
21) Did you contact existing or potential customers to invite them to IFFINA 2014 (last year)?
( ) Yes
( ) No

Logic: Hidden by default Dynamically shown if "Did you contact existing or potential customers to invite them to IFFINA 2014 (last year)?" = Yes
ID: 95
How did you contact them?
[ ] By phone

[ ] By e-mail
[ ] By letter
[ ] By fax
[ ] Met in person
[ ] Sent special promotions
[ ] Other: _____

Logic: Show/hide trigger exists.
ID: 96
22) What promotional materials did you use for IFFINA 2014?
[ ] Brochure
[ ] Samples
[ ] Video
[ ] Business cards
[ ] Catalogues
[ ] Contest
[ ] Custom made sign
[ ] Other promotional material: _____

Validation: Min = 0 Max = 300
Logic: Hidden by default Dynamically shown if "What promotional materials did you use for IFFINA 2014?" = Samples
ID: 137
How many samples did you to bring to IFFINA 2014?
0 _____[__]_____ 300

Validation: Min = 0 Max = 20
ID: 138
23) How many people did you have working your stand at any one time at IFFINA 2014?
0 _____[__]_____ 20

ID: 99
24) Were your sales people trained in arousing visitor interest in trade fairs?
( ) Yes
( ) No
( ) Some have, some have not

ID: 100
25) Were your sales people trained in answering product questions?
( ) Yes
( ) No
( ) Some have, some have not

ID: 101
26) Could your sales people communicate clearly in a foreign language?
( ) Yes
( ) No
( ) Some yes, some no

ID: 102
27) Does your company have specific visitor contact procedures for trade fairs?
( ) Yes

( ) No

Validation: Min = 0 Max = 500
ID: 108
28) For how many new potential customers did you get contact information at IFFINA 2014?
0 _____[__]_____ 500

Validation: Min = 0 Max = 100
ID: 109
29) How many existing customers did you meet at IFFINA 2014?
0 _____[__]_____ 100

Validation: Min = 0 Max = 100
ID: 110
30) How interested were visitors in your booth and product?
0 _____[__]_____ 100

Page entry logic: This page will show when: Question "Did you attend IFFINA 2014?" #5 is one of the following answers ("Yes")
Satisfaction with IFFINA 2014

ID: 116
31) How satisfied were you with the following aspects of IFFINA 2014?

	Aspect
Advertising	_____
Pre-registration communication	_____
Post-registration communication	_____
Venue location	_____
Venue layout	_____
Venue signage	_____
Quantity of vendors	_____
Diversity of products	_____
Quality of products	_____
Seminars	_____

Validation: Min = -100 Max = 100
Logic: Hidden by default Hidden unless: (Question "Did you attend IFFINA 2013 or earlier?" #6 ("Yes") AND Question "Did you attend IFFINA 2014?" #5 is one of the following answers ("Yes"))
ID: 73
Compared to previous years, IFFINA 2014 was:

Advertising	-100 _____[__]_____ 100
Pre-registration communication	-100 _____[__]_____ 100
Post-registration communication	-100 _____[__]_____ 100
Venue location	-100 _____[__]_____ 100
Venue layout	-100 _____[__]_____ 100
Venue signage	-100 _____[__]_____ 100
Quantity of vendors	-100 _____[__]_____ 100
Diversity of products	-100 _____[__]_____ 100
Quality of products	-100 _____[__]_____ 100
Seminars	-100 _____[__]_____ 100

Logic: Show/hide trigger exists.
ID: 8
32) Did you sign a sales agreement while at IFFINA 2014?
( ) Yes
( ) No

Validation: Min = 0 Max = 20
Logic: Hidden by default Dynamically shown if "Did you sign a sales agreement while at IFFINA 2014?" = Yes
ID: 133
How many sales contracts or purchase orders did you sign?
0 _____[__]_____ 20

Page entry logic: This page will show when: (Question "What kinds of materials are you looking for in furniture?" #8 is not one of the following answers ("Natural rattan") AND Question "What kinds of materials is the furniture you sell made of?" #17 is not one of the following answers ("Natural rattan"))

Consideration of sourcing rattan furniture

Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/ we buy or import furniture from Indonesia")
ID: 85
33) Would you consider sourcing natural rattan products within the next five years?
( ) Yes
( ) No

Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/ we buy or import furniture from Indonesia")
ID: 170
34) Which of the following do you consider barriers to entering the natural rattan furniture business?
_____There are not enough natural rattan furniture factories
_____Costs of natural rattan furniture is to high compared to the sale price
_____Difficult to find or build relationships with rattan factories
_____Difficult to find or build relationships with buyers
_____Difficult to obtain proper permits
_____Other costs are too high compared to sale price
_____Market for rattan furniture is not strong right now
_____I/we don't know how to design or innovate to reach new markets
_____I/we can't get the proper import permits
_____Other manufacturers that have ethnic connections with other countries have better market connections that I/we can make
_____Other reason
_____I/we can't verify the chain of custody
Comments:

Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/we produce or export furniture from Indonesia")
ID: 171
35) Would you consider producing natural rattan products within the next five years?
( ) Yes
( ) No

Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/we produce or export furniture from Indonesia")
ID: 169
36) Which of the following do you consider barriers to entering the natural rattan furniture business?
_____There are not enough rattan cane suppliers
_____Costs of rattan cane is too high compared to sale price
_____Costs of labour are too high compared to sale price
_____Difficult to find or build relationships with rattan cane suppliers
_____Difficult to find or build relationships with buyers
_____Difficult to obtain proper permits

_____Other costs are too high compared to sale price
_____Cost of bribes to government officials are too high
_____Market for rattan furniture is not strong right now
_____I/we don't have the technology to develop innovative designs
_____I/we don't have the capital to invest in a bigger factory
_____I/we don't know how to design or innovate to reach new markets
_____I/we can't get the proper operational permits
_____Other manufacturers that have ethnic connections with other countries have better market connections that I/we can make
_____Other reason
Comments:

Page entry logic: This page will show when: ((Question "What kinds of materials are you looking for in furniture?" #8 is one of the following answers ("Natural rattan") OR Question "Would you consider sourcing natural rattan products within the next five years?" #33 is one of the following answers ("Yes")) OR Question "What kinds of materials is the furniture you sell made of?" #17 is one of the following answers ("Natural rattan"))
Rattan Furniture

ID: 136
We would like to ask a few quick questions about rattan furniture specifically.

Validation: Min = -100 Max = 100
ID: 18
37) What changes have you seen in the natural rattan industry in the last five years?

Competition	-100 _____[__]_____ 100
Consumer awareness of rattan	-100 _____[__]_____ 100
Consumer demand	-100 _____[__]_____ 100
Costs of production	-100 _____[__]_____ 100
Ease of obtaining inputs	-100 _____[__]_____ 100
Ease of regulatory restrictions	-100 _____[__]_____ 100
Innovation of design	-100 _____[__]_____ 100

Product diversification	-100 _____[__]_____ 100
Quality of products	-100 _____[__]_____ 100
Sale price	-100 _____[__]_____ 100
Cost of rattan cane	-100 _____[__]_____ 100

Comments:

Validation: Min = -100 Max = 100
Logic: Show/hide trigger exists.
ID: 19
38) What do you think will happen to the market share of the following furniture products in the next five (5) years?

Synthetic rattan	-100 _____[__]_____ _ 100
Other natural fibres (hyacinth, banana etc)	-100 _____[__]_____ _ 100
Certified wood	-100 _____[__]_____ _ 100
Other synthetic materials	-100 _____[__]_____ _ 100
Other natural materials	-100 _____[__]_____ _ 100
Natural rattan	-100 _____[__]_____ _ 100

Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/we produce or export furniture from Indonesia")
ID: 167
39) Which of the following do you consider barriers to growing your natural rattan furniture business?
_____There are not enough rattan cane suppliers
_____Costs of rattan cane is too high compared to sale price
_____Costs of labour are too high compared to sale price
_____Difficult to find or build relationships with rattan cane suppliers

_____Difficult to find or build relationships with buyers
_____Difficult to obtain proper permits
_____Other costs are too high compared to sale price
_____Cost of bribes to government officials are too high
_____Market for rattan furniture is not strong right now
_____I/we don't have the technology to develop innovative designs
_____I/we don't have the capital to invest in a bigger factory
_____I/we don't know how to design or innovate to reach new markets
_____I/we can't get the proper operational permits
_____Other manufacturers that have ethnic connections with other countries have better market connections that I/we can make
_____Other reason
Comments:

Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/ we buy or import furniture from Indonesia")
ID: 168
40) Which of the following do you consider barriers to growing your natural rattan furniture business?
_____There are not enough natural rattan furniture factories
_____Costs of natural rattan furniture is to high compared to the sale price
_____Difficult to find or build relationships with rattan factories
_____Difficult to find or build relationships with buyers
_____Difficult to obtain proper permits
_____Other costs are too high compared to sale price
_____Market for rattan furniture is not strong right now
_____I/we don't know how to design or innovate to reach new markets
_____I/we can't get the proper import permits
_____Other manufacturers that have ethnic connections with other countries have better market connections that I/we can make
_____Other reason
_____I/we can't verify the chain of custody
Comments:

Validation: Min = -100 Max = 100
ID: 115
41) Do you think that in five (5) years, the natural rattan industry will be better or worse than it is now?
-100 _____[__]_____ 100

ID: 20
42) Which of the following actions should be taken in the natural rattan industry?
Please drag you selection from the left to the right column and order them from most important to least important
_____Enable better international trade legislation
_____Ensure traceability of rattan
_____Reduce trade barriers
_____Organise better as a trade association
_____Improve quality control management of semi-processed rattan
_____Improve quality control management of rattan furniture

_____Diversify rattan products available in the market
_____Improve marketing of rattan as a product
_____Other
Comments:

ID: 113
43) Are you aware that starting December 1, 2012 Indonesia banned the exports of semi and un processed rattan?
( ) Yes
( ) No

Validation: Min = -100 Max = 100
Logic: Hidden unless: Question "Are you aware that starting December 1, 2012 Indonesia banned the exports of semi and un processed rattan?" #43 is one of the following answers ("Yes")
ID: 114
44) How would you describe the impact of the ban on your business?
-100 _____[__]_____ 100

Logic: Hidden unless: Question "Are you aware that starting December 1, 2012 Indonesia banned the exports of semi and un processed rattan?" #43 is one of the following answers ("Yes")
ID: 163
45) The purpose of the export ban was to increase the availability of rattan cane in Indonesia, reduce the availability of cane in competing countries, and reduce the price in Indonesia. None of this has happened. Why do you think this is?
_____There is still smuggling of rattan cane out of Indonesia
_____Other countries have increased production of rattan cane
_____The demand for rattan furniture has done down globally
_____Indonesian rattan furniture companies have failed to develop rattan furniture that competes with other countries
_____Other
Comments:

ID: 166
46) The global sales of natural rattan furniture have gone down more than wood furniture sales over the past several years. How would you explain this?
_____Natural rattan furniture is out of fashion
_____Natural rattan furniture is becoming too expensive
_____Customers prefer to buy products that are certified as sustainable
_____Natural rattan furniture is harder to source than wood furniture
_____Advances in synthetic rattan furniture attract customers away from natural rattan
_____The quality of natural rattan furniture has gone down whilst wood has not
_____Other
_____Consumers are looking for more durable or longer lasting furniture
_____Wood is in fashion
Comments:

Validation: Must be percentage

Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/we produce or export furniture from Indonesia")
ID: 187
47) Please let us know from where you source your natural rattan cane. Express in a percentage for each type of seller. The total must equal 100.
_____Inter-island Intermediary
_____Direct from the processor
_____Dealer in Surabaya
_____Dealer somewhere else but not near my factory
_____Direct from rattan farmers or collectors
_____Dealer in Cirebon
_____Dealer near my factory somewhere else
_____Other

Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/we produce or export furniture from Indonesia")
ID: 192
48) Where is your factory?
[ ] Near Cirebon
[ ] Near Surabaya
[ ] Somewhere else on Sumatra
[ ] Somewhere else on Java
[ ] Somewhere else on Kalimantan
[ ] Somewhere else on Sulawesi
[ ] Somewhere else not listed

Validation: Must be numeric
Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/ we buy or import furniture from Indonesia")
ID: 189
49) From how many companies do you source natural rattan furniture?
_____

Validation: Min = -500 Max = 500
Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/we produce or export furniture from Indonesia")
ID: 195
50) How much has the price of rattan cane changed in each year compared to the previous year?

2014	-500 _____[__]_____ 500
2013	-500 _____[__]_____ 500

2012	-500 _____[__]_____ 500
2011	-500 _____[__]_____ 500
2010	-500 _____[__]_____ 500
2009	-500 _____[__]_____ 500
2008	-500 _____[__]_____ 500
2007	-500 _____[__]_____ 500
2006	-500 _____[__]_____ 500
2005	-500 _____[__]_____ 500

Validation: Min = -500 Max = 500
Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/ we buy or import furniture from Indonesia")
ID: 194
51) How much has the price of natural rattan furniture changed in each year compared to the previous year?

2014	-500 _____[__]_____ 500
2013	-500 _____[__]_____ 500
2012	-500 _____[__]_____ 500
2011	-500 _____[__]_____ 500
2010	-500 _____[__]_____ 500

2009	-500 _____[__]_____ 500
2008	-500 _____[__]_____ 500
2007	-500 _____[__]_____ 500
2006	-500 _____[__]_____ 500
2005	-500 _____[__]_____ 500

Validation: Min = 0 Max = 100
Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/ we buy or import furniture from Indonesia")
ID: 190
52) How much of the natural rattan furniture that you buy is from Indonesia?
0 _____[__]_____ 100

ID: 149
53) If you have any other comments about rattan furniture, please write them here:

Page entry logic: This page will show when: (Question "Did you attend IFFINA 2014?" #5 is one of the following answers ("Yes") OR Question "Did you attend IFFINA 2013 or earlier?" #6 is one of the following answers ("Yes"))
Suggestions for improvement

ID: 22
54) In order of priority, what do you suggest should improve for IFFINA 2015?
_____Earlier confirmation of dates
_____Better co-ordination with other international events
_____Better co-ordination with other Indonesian events
_____More vendors
_____More diversity of products
_____More innovative products
_____Better language capacity
_____Better venue
_____More seminars
_____More demonstrations of furniture production
_____Better marketing
_____Better display quality
_____Better prices
Comments:

Page entry logic: This page will show when: Question "Are you thinking of attending IFFINA 2015 in Jakarta?" #4 is one of the following answers ("No")
So you do not plan to attend IFFINA 2015.

ID: 152
55) Earlier, you mentioned that you do not plan on attending IFFINA 2015. Please state your reasons here in order of most to least important:
_____The timing is not appropriate for me
_____The quality is better at other fairs
_____The price is better at other fairs
_____The selection is better at other fairs
_____I prefer to purchase from other countries
_____I already have all the suppliers I need in Indonesia
_____I prefer not to go to furniture fairs
_____Other
Comments:

Page entry logic: This page will show when: Question "Is your company a member of ASMINDO?" #3 is one of the following answers ("Yes","No")
About ASMINDO

Logic: Hidden unless: Question "Is your company a member of ASMINDO?" #3 is one of the following answers ("Yes")
ID: 159
56) As an ASMINDO member, what would you say should be ASMINDO's top priorities for the next five (5) years?
_____Improve the quality of Indonesian furniture
_____Improve national trade policies to facilitate better market access
_____Increase awareness of Indonesian furniture in import markets
_____Improve the accessibility and price of materials
_____Create internationally-recongnised branding for Indonesian furniture
_____Improve member knowledge of sustainable material sourcing
_____Improve member knowledge of marketable designs
_____Other
Comments:

ID: 160
57) You mentioned that you are not an ASMINDO member. What could ASMINDO do to attract you to become a member?
_____Improve marketing of Indonesian products
_____Reduce membership fee
_____Improve member training for production
_____Improve advocacy work with the Indonesian government
_____Other
_____Represent my area of Indonesia better
_____Improve member training for marketing
_____Improve member training for business skills
Comments:

Just a few more questions

ID: 172
You help so far has been wonderful. Thank you. We have just a few more questions that will help us to better understand a bit more about your company. Please hang in there... this is the last page of questions. Again, you answers are completely anonymous and optional.

Validation: Min = 0 Max = 100 Must be percentage Whole numbers only Positive numbers only
Logic: Hidden unless: Question "What kinds of materials is the furniture you sell made of?" #17

ID: 173
Piping: Piped Values From Question 17. (What kinds of materials is the furniture you sell made of?)
58) You mentioned earlier that you produce furniture of the following materials. Can you please give an indication of how much of your business comes from each material? Please write the approximate percentage of each material. The total must equal 100.
{list of piped responses from #17]
_____Other

Validation: Min = 0 Max = 100 Must be percentage Whole numbers only Positive numbers only
Logic: Hidden unless: Question "What kinds of materials are you looking for in furniture?" #8

ID: 180
Piping: Piped Values From Question 8. (What kinds of materials are you looking for in furniture?)
59) You mentioned earlier that you buy furniture of the following materials. Can you please give an indication of how much of your business comes from each material? Please write the approximate percentage of each material. The total must equal 100.
{list of piped responses from #8]
_____Other

Validation: Must be percentage Whole numbers only Positive numbers only
Logic: Hidden unless: (Question "What kinds of materials are you looking for in furniture?" #8 is one of the following answers ("Wood") OR Question "What kinds of materials is the furniture you sell made of?" #17 is one of the following answers ("Wood"))
ID: 178
60) You mentioned earlier that you deal in wood furniture. Please let us know approximately what percentage of each type of wood you work with.
_____Teak
_____Mahogany
_____Rosewood
_____Acacia
_____Trembesi (Rain Tree)
_____Camphor
_____Meranti
_____Other

Validation: Must be numeric

Logic: Hidden unless: Question "What kinds of materials is the furniture you sell made of?" #17 is one of the following answers ("Wood")
ID: 181
61) How much of your wood do you source from the following sources? Please write the approximate percentage of each material. The total must equal 100.
_____Forestry corporation (HPH)
_____Intermediary
_____Community forestry
_____Independent forester

Validation: Must be numeric
Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/we produce or export furniture from Indonesia")
ID: 182
62) On average, how many containers does your company sell every month?
_____

Validation: Must be numeric
Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/ we buy or import furniture from Indonesia")
ID: 186
63) On average, how many containers does your company sell buy every month?
_____

Validation: Must be percentage Whole numbers only Positive numbers only
Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/we produce or export furniture from Indonesia")
ID: 183
64) How much of your sales is export and how much is domestic? Please enter in approximate percentages. The total must equal 100.
_____Export
_____Domestic

Validation: Must be percentage Whole numbers only
Logic: Hidden unless: Question "Okay, great. This won't take long. Before we start, can you please select which of the following describes you or your company best:" is one of the following answers ("I/we produce or export furniture from Indonesia")
ID: 184
65) Approximately how much has your sales volume this year changed compared to last year? Please express in percentage as a positive number if it has gone up, or a negative (-) number if it has gone down.
_____

Validation: Min = -200 Max = 200
ID: 197
66) How did your company's profit margins change in each year compared to the previous year?

2014	-200 _____[__]_____ 200
2013	-200 _____[__]_____ 200
2012	-200 _____[__]_____ 200
2011	-200 _____[__]_____ 200
2010	-200 _____[__]_____ 200
2009	-200 _____[__]_____ 200
2008	-200 _____[__]_____ 200
2007	-200 _____[__]_____ 200
2006	-200 _____[__]_____ 200
2005	-200 _____[__]_____ 200

Thank You.

ID: 1
Thank you for taking the survey. Your responses are valuable and will inform the Indonesian furniture industry. If you want follow up on this survey, you can contact rodd.myers@uea.ac.uk.

We hope to see you at the IFFINA from March 14 to 17, 2015 at the Eco Green East Park, Senayan, Jakarta.

Appendix H: Wealth rating categories and weights

Category	Attributes	Rating method (value)		Weight
Durables	motorbikes	frequency		20%
	television	frequency		
	satellite dish	frequency		
	generator[96]	frequency		
Housing construction	floor material (%)		frequency	5%
	- soil	normative (0)		
	- wood	normative (2)		
	- concrete	normative (5)		
	- ceramic	normative (10)		
	wall material (%)		frequency	10%
	- bamboo	normative (0)		
	- wood	normative (1)		
	- concrete	normative (5)		
	roof material (%)		frequency	10%
	- leaves	normative (0)		
	- corrugated metal	normative (5)		
	light bulbs[97]	frequency		10%
	glass windows	frequency		5%
Land holdings	hectares	frequency		20%
Productive assets	cacao trees	frequency		20%

Wealth rating for each household was calculated as follows:

DURABLES frequency*.2+
HOUSE FLOOR frequency*.05+
HOUSE WALLS frequency*.1+
HOUSE ROOF frequency*.1+
HOUSE BULBS frequency *.1+
HOUSE WINDOWS frequency*.05+
LAND frequency*.2+
TREES frequency*.2

96. All residents have access to hydroelectric power, which is charged Rp 5000 (£0.33) per month per bulb socket. Several houses have solar power, but they were given through a government-sponsored social programme. The Village Head suggested that it is not a reliable negative indicator of wealth as several applications of the poorest are still in process.

97. Light bulbs is used as proxy for house size. Monthly payment to the hydroelectric committee is also based on the number of bulbs in the house.

Frequencies are a function of the value over the average value for all households.

The wealth rating was then assigned a ranking from zero to one calculated by the household's wealth rating over the highest wealth ranting of all households.

Appendix I: Wealth rating and coefficients by household and village

This appendix shows the raw data results for household survey wealth evaluation questions. Due to formatting issues, I coded the columns as follows:

A	Household ID
B	Wealth Ranking
C	Wealth Rating
D	DURABLES GENSET
E	DURABLES MOTORBIKE
F	DURABLES SATDISH
G	DURABLES TV
H	HOUSE BULBS
I	HOUSE FLOOR CERAMIC
J	HOUSE FLOOR CONCRETE
K	HOUSE FLOOR DIRT
L	HOUSE FLOOR WOOD
M	HOUSE ROOF LEAVES
N	HOUSE ROOF METAL
O	HOUSE WALLS BAMBOO
P	HOUSE WALLS CONCRETE
Q	HOUSE WALLS WOOD
R	HOUSE WINDOWS
S	LAND COCOA
T	LAND LADANG
U	LAND SAWAH
V	LAND UNUSED
W	Location
X	Rattan days per year

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
001	0.09	0.19	0	0	0	0	2		1			1		1			0	1	1	0.75	0	01	
002	0.19	0.41	0	2	0	1	2		0.7	0.3		0.2	0.8	0.3		0.7	0	0.5	1	0.5	0	01	60
003	0.03	0.05	0	0	0	0	1			1		1		1			0	0.4	0	0.25	0	01	
004	0.24	0.32	0	1	1	1	2		0.9	0.1		1				1	0	1	0.5	0.04	0.5	01	
005	0.23	0.51	0	1	1	1	3				1		1			1	0	0.4	0.4	0.4	0	01	30
006	0.06	0.07	0	0	0	0	1			0.5	0.5	1		1			0	1	0.04	0	0	01	56
007	0.08	0.13	0	1	0	0	2			1		1		0.8		0.2	0	0.5	1	0.5	0	01	270
008	0.09	0.16	0	1	0	0	2			1		1		0.6		0.4	0	0.75	0.5	0.5	0	01	60
010	0.09	0.33	0	1	0	0	2		1			1				1	0	0.5	0	0	0	01	96
011	0.04	0.06	0	0	0	0	1			0.7	0.3	1		1			0	1	0.25	0	0	01	
012	0.71	2.18	0	1	1	1	3		1				1		1		8	5				01	60
013	0.05	0.17	0	0	0	0	1				1	1		0.4		0.6	0	0.45	0	0	0	01	90
014	0.27	0.44	0	1	0	0	3		1			0.3	0.7	0.5		0.5	0	3	3	2	2	01	7
015	0.06	0.10	0	0	0	0	2			1		1		1			0	1	0	0	0	01	21
016	0.10	0.26	0	1	0	0	2		0.2		0.8	1		0.2		0.8	0	0.5	0.5	0.00	0.5	01	
017	0.11	0.13	0	0	0	0	2			1		1		0.8		0.2	0	1.33	0.5	0.00	1.5	01	60
020	0.07	0.21	0	0	0	0	2			1		1		0.2		0.8	0	0.67	0	0.00	0	01	
021	0.05	0.15	0	0	0	0	1			1		1		0.3		0.7	0	0.5	0.4	0.01	0	01	60
022	0.06	0.19	0	0	0	0	2			1		0.5	0.5	1			0	0.27	1	0.3	0	01	60
023	0.12	0.49	0	0	0	0	3		1				1	0.5		0.5	0	0.6	0	0.5	0	01	
024	0.08	0.10	0	0	0	0	2			1		1		1			0	1	1.5	0.02	0	01	

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
025	0.07	0.17	0	0	0	0	2			1		1		0.5		0.5	0	0.5	0.5	0.4	0.5	01	21
026	0.06	0.10	0	0	0	0	2			1		1		1			0	1	0	0	0	01	150
027	0.10	0.38	0	0	0	0	2		1				1	1			0	0.5	0.5	0.5	0	01	60
029	0.13	0.38	0	0	0	0	3		1			1				1	0	1	0.5	1.2	0	01	
031	1.00	2.36	1	4	1	1	10		1				1		1		7	10	0	0	0	01	
032	0.10	0.25	0	1	0	0	2		0.5	0.5		1		0.7	0.3		0	0.75	0	0.5	0	01	72
033	0.07	0.25	0	1	0	0	2		0.5	0.5		0.5	0.5	0.9		0.1	0	0.27	0.01	0.00	0	01	21
034	0.06	0.15	0	1	0	0	2		0.2	0.8		1		0.8		0.2	0	0.27	0.25	0.5	0	01	84
035	0.10	0.31	0	1	0	0	2		0.5	0.5		0.5	0.5	0.5		0.5	0	0.5	0.5	0.06	0	01	120
036	0.03	0.06	0	0	0	0	1			1		1		0.9		0.1	0	0.27	0.001	0.00	0.2	01	20
037	0.12	0.51	0	0	0	0	2		1				1			1	0	0.5	0	0.25	0	01	
038	0.12	0.56	0	1	0	0	3		1				1			1	0	0.5	0	0.01	0	01	
040	0.21	0.33	0	1	0	0	2		1							1		2.7	0	1.8	0	01	
042	0.06	0.15	0	0	0	0	1		0.5	0.5		1		0.6		0.4	0	0.67	0	0.01	0	01	30
043	0.12	0.24	0	0	0	0	2				1	1		0.25		0.75	0	0.75	0.5	0.75	2	01	
044	0.12	0.42	0	1	0	0	2			1			1			1	0	0.5	0	0.5	0.5	01	30
047	0.50	1.82	0	2	1	1	3		1				1		1		6	1	0.5	0.5	0	01	
048	0.00	0.00																				01	
051	0.27	0.67	0	1	0	0	3		1				1		0.5	0.5	0	3.33	0.003	0	0	01	
054	0.27	0.67	0	1	0	0	5		1				1			1	0	3	0	1	0	01	
056	0.06	0.16	0	1	0	0	2			0.2	0.8	1		0.8		0.2	0	0.01	1	0.00	0	01	
057	0.09	0.33	0	0	0	0	2		0.5	0.5			1	1			0	0.5	0.5	0.5	0	01	

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
059	0.14	0.47	1	1	0	0	2		0.8	0.2			1	0.2		0.8	0	0.5	0	0.75	1	01	60
060	0.09	0.50	0	0	0	0	2		1			0.8	0.2	0.2	0.8		0	0	0	0	0	01	
061	0.19	0.46	0	1	0	0	2				1		1			1	0	1.25	1	0.75	1	01	
064	0.14	0.48	0	0	0	0	2		1			0.2	0.8			1	0	1	1	0	0	01	30
065	0.10	0.23	0	1	0	0	2		0.5	0.5		1		0.4		0.6	0	0.75	0.5	0.4	0	01	60
066	0.04	0.23	0	0	0	0	2		0.6	0.4		0.6	0.4	1			0	0.11	0.003	0.00	0	01	
067	0.02	0.10	0	0	0	0	2			1		1		1			0		0	0.00	0	01	
068	0.29	0.58	0	1	1	1	4				1	1			1		0	1	0.5	0.5	1	01	
069	0.09	0.49	0	0	0	0	2		0.7	0.3			1			1	0	0.2	0	0.01	0	01	28
070	0.10	0.35	0	0	0	0	2			1			1	0.5		0.5	0	0.5	0.5	0.5	0	01	
071	0.08	0.17	0	0	0	0	2			1		1		0.5		0.5	0	1	0.5	0	0	01	60
072	0.29	0.47	1	1	1	1	3		1				1	0.7		0.3	0	2	0	0.36	0.04	01	
074	0.00	0.00																				01	
075	0.18	0.19	0	1	1	1	2		1			1		1			0	0.7	0.014	0.01	0	01	90
076	0.86	2.68	1	1	1	1	6		1				1		1		10	5	0	2	3	01	
077	0.13	0.40	0	1	0	0	3			1			1	0.5		0.5	0	0.5	0.5	1	0	01	240
078	0.21	0.61	0	2	0	0	4		1				1			1	0	1.25	1	0.05	0.5	01	90
080	0.20	0.61	1	1	0	0	4		1				1			1	0	1.5	0	0	0	01	90
081	0.20	0.72	0	1	0	0	2		1				1		1		0	1	0.5	0.5	0	01	
082	0.16	0.28	0	1	0	0	2		0.5	0.5		1				1	0	1.25	1	0.5	1.5	01	90
084	0.08	0.14	0	0	0	0	2		0.4	0.6		1		1			0	1	0	0.9	0	01	
085	0.32	0.45	1	1	1	1	3		0.7		0.3	0.3	0.7	0.3		0.7	0	2	0.5	0.4	2	01	14

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
086	0.11	0.33	0	1	0	0	2		0.5	0.5			1	1			0	0.5	1	0	0	01	90
088	0.06	0.18	0	0	0	0	2			1		1		0.4		0.6	0	0.67	0	0.01	0	01	30
089	0.11	0.40	0	0	0	0	4			1		0.3	0.7	0.5		0.5	0	0.67	0.5	0	0.5	01	
090	0.30	0.56	1	2	1	1	3		1				1			1	0	1	1	0.5	0	01	
091	0.26	0.59	0	2	1	1	2		0.8	0.2		0.15	0.85	0.25	0.75		0	0.5	0.5	0.03	0	01	21
092	0.16	0.49	0	2	0	0	2		1			0.4	0.6	0.2	0.4	0.4	0	0.5	0.5	0.15	0.5	01	180
093	0.01	0.04	0	0	0	0	0				1	1		1			0					01	
094	0.16	0.61	0	1	0	0	4		1				1			1	0	0.5	0.5	0.5	0	01	108
095	0.00	0.00																				01	
096	0.22	0.86	0	1	0	0	8		0.85	0.15			1		0.25	0.75	0	1	0.5	0.5	0	01	
098	0.00	0.00																				01	
099	0.12	0.46	0	0	0	0	2				1		1			1	0	1	0	0	0	01	
101	0.32	0.82	1	1	1	1	8		1				1			1	0	1	0.5	1	0	01	
102	0.00	0.00																				01	
103	0.24	0.44	1	0	1	1	2		1				1	0.5		0.5	0	1	1	0	0	01	
104	0.14	0.51	0	0	0	0	3		1			0.3	0.7			1	0	1	0	0.5	0	01	
105	0.07	0.28	0	1	0	0	2				1	1				1	0	0.05	0.01	0.01	0.5	01	42
106	0.38	0.51	1	1	1	1	2		1				1			1	0	2.5	0	0.1	5	01	42
107	0.15	0.51	0	1	0	0	2		1				1			1	0	0.5	0.5	0.5	0	01	
108	0.11	0.47	0	0	0	0	2		0.5	0.5			1			1	0	0.75	0	0	0	01	
111	0.14	0.51	0	1	0	0	3				1		1			1	0	0.5	0	1	0	01	
112	0.03	0.17	0	0	0	0	2			1		1		0.5		0.5						01	

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
114	0.17	0.41	0	0	0	0	1		0.5	0.5	0		1	0.05	0	0.95	0	1.5	2	0	0	30	
115	0.04	0.00	0	0	0	0	0			1		1		1			0	0.5	1	0	0	30	
116	0.06	0.00	0	0	0	0	0			1		1		1			0	1	1	0	0	30	
117	0.11	0.24	0	0	0	0	1		0.5	0.5		0.5	0.5	0.6		0.4	0	1	1.5	0	0	30	
118	0.13	0.28	0	0	0	0	1		0.6	0.4		0.4	0.6	0.5		0.5	0	1	2.5	0	0	30	
119	0.13	0.39	0	0	0	0	1		0.8	0.2		0.1	0.9	0.25		0.75	0	1	1	0	0	30	
120	0.16	0.36	0	1	0	0	1		0.6	0.4			1	0.5		0.5	0	1.5	1.5	0	0	30	
121	0.35	0.59	1	1	1	1	4		0.5	0	0.5		1			1	0	2.5	2	0	0	30	
122	0.15	0.23	0	0	0	0	1			1		0.5	0.5	0.4		0.6	0	2	1.5	0	0	30	
123	0.23	0.44	0	1	0	0	1	0	0.5	0	0.5		1	0		1	0	3	1	0	0	30	
124	0.13	0.30	0	0	0	0	1		0.6	0.4		0.3	0.7	0.5	0	0.5	0	1.5	1	0	0	30	
125	0.09	0.30	0	0	0	0	1			1		1		0.5		0.5	1	0.5	1.5	0	0	30	
126	0.09	0.05	0	1	0	0	1			1		1		1			0	1	1.5	0	0	30	
127	0.11	0.31	0	0	0	0	1			0	1	0.25	0.75	0.4		0.6	0	1	1	0	0	30	
128	0.11	0.25	0	0	0	0	1				1	0.5	0.5	0.5		0.5	0	1	1.5	0	0	30	
129	0.13	0.27	0	1	0	0	1		0.5	0.5		0.5	0.5	0.4		0.6	0	1	1.5	0	0	30	
130	0.26	0.44	0	1	0	1	2		0.4	0.6			1	0.15		0.85	0	2	2.5	0	0	30	
131	0.16	0.32	0	0	0	0	0			1			1			1	0	2	1	0	0	30	
132	0.33	0.96	0	1	0	1	1		0.4	0	0.6		1			1	3	2	1	0	0	30	
133	0.22	0.27	1	0	1	1	1		0.4	0.6		0.4	0.6	0.5		0.5	0	1.5	1	0	0	30	
134	0.11	0.25	0	0	0	0	0		0.8	0.2		0.5	0.5	0.4		0.6	0	1	2	0	0	30	
135	0.09	0.25	0	0	0	0	1			0.4	0.6	0.4	0.6	0.5		0.5	0	0.5	0.5	0	1	30	

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
136	0.33	0.70	1	1	1	1	2	0.7	0.3				1		0.6	0.4	0	1.5	2	0	0	30	
137	0.22	0.31	0	0	0	0	1			0.2	0.8	0.2	0.8	0.4		0.6	0	3	2.5	0	0	30	
138	0.18	0.39	0	1	0	0	1		0.8	0.2		0.15	0.85	0.2		0.8	0	1.5	2	0	0	30	
139	0.17	0.42	0	1	0	0	1		0.6	0.1	0.3		1	0.1		0.9	0	1.5	1	0	0	30	
140	0.14	0.26	0	0	0	0	0		0.7	0.3		0.4	0.6	0.4		0.6	0	1.5	2	0	0	30	
141	0.31	0.57	1	1	1	1	2	0.9		0.1			1	0.1		0.9	0	2	1	0	0	30	
142	0.24	0.69	0	1	0	0	2		1				1			1	1	2	1	0	0	30	
143	0.13	0.33	0	0	0	0	1		0.6	0.4		0.2	0.8	0.4		0.6	0	1	2	0	0	30	
144	0.15	0.40	0	0	0	0	1		0.7	0.3			1	0.25		0.75	0	1.5	1	0	0	30	
145	0.13	0.31	0	0	0	0	1			0.1	0.9	0.2	0.8	0.4		0.6	0	1.5	1	0	0	30	
146	0.06	0.00	0	0	0	0	0			1		1		1			0	1	1.5	0	0	30	
147	0.30	0.64	1	2	0	0	3	0.8	0.2				1			1	0	3	2	0	0	30	
148	0.33	0.73	1	1	1	1	3		0.8	0	0.2		1			1	1	2	0.5	0	0	30	
149	0.19	0.37	0	1	0	0	1		0.8	0.2		0.2	0.8	0.3		0.7	0	2	1.5	0	0	30	
150	0.33	0.49	0	2	1	1	2		0.5	0	0.5		1			1	0	2	2	0	0	30	
151	0.09	0.20	0	1	0	0	1			1		0.2	0.8	1			0	0.5	1	0	0	30	20
153	0.11	0.28	0	0	0	0	1			1		0.3	0.7	0.3		0.7	0	1	1	0	0	30	40
154	0.11	0.25	0	0	0	0	0			1		0.25	0.75	0.15		0.85	0	1	1.5	0	0	30	20
155	0.19	0.38	0	1	0	0	1	1				0.2	0.8	1			0	2	1.5	0	0	30	20
156	0.12	0.40	0	0	0	0	1		0.8	0.2		0.15	0.85	0.1		0.9	0	1	0.5	0	0	30	25
157	0.31	0.51	1	1	1	1	2		1				1			1	0	2	1.5	0	0	30	20
158	0.07	0.12	0	0	0	0	1			1		1		0.5		0.5	0	0.5	2	0	0	30	40

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
159	0.12	0.24	0	0	0	0	1			1		0.25	0.75	0.6		0.4	0	1.5	1	0	0	30	40
160	0.07	0.18	0	0	0	0	1			1		0.6	0.4	0.6		0.4	0	0.5	1	0	0	30	20
161	0.15	0.37	0	1	0	0	0		1			0.2	0.8			1	0	1	2	0	0	30	20
162	0.17	0.37	0	0	0	0	1		0.7	0.3		0.2	0.8	0.2		0.8	0	2	1	0	0	30	20
163	0.05	0.00	0	0	0	0	0			1		1		1			0	1	0.5	0	0	30	20
164	0.15	0.32	0	0	0	0	1			0.2	0.8	0.25	0.75	0.25		0.75	0	1.5	2	0		30	25
165	0.00	0.00																				30	

Appendix J: Coding tree

Name	Sources	References
AMKRI/ASMINDO	8	12
Access	22	52
Access- Control	14	19
Access- Gain	14	21
Access- Maintain	9	12
All size all species	11	13
Aspiration	2	2
Calculations	17	22
Challenges	23	43
Change		
Industry change	39	76
Land use change	5	6
Village changes	3	4
Classification	5	7
Client	10	11
Competition	16	23
Corruption	6	10
Bribes	5	7
False documents	5	5
Smuggling	14	19
Tax Fraud	5	5
Theft	2	2
Design	10	10
Elite Capture	5	6
Environment	10	13
Events		
Trade Ban	22	38
US-EU Financial Crisis	7	7
Finances		
Costs	49	91
Loans	9	12
Payment terms	5	5
Profit	15	17
Sale prices	18	26
Taxes	8	8
Forest Police	4	5
Government Programme	3	3
Loyalty	7	8
MOA		
MOA-Authority	19	30
MOA-Capital	18	26
MOA-Knowledge	19	23
MOA-Labour_relations	31	52
MOA-Market	42	70
MOA-Social_Identity	13	15
MOA-Social_relations	28	57
MOA-Technology	12	15
Materiality		
Biogeophysical properties	14	21
Quality	13	16
Quantitity	2	2
Materials- Other	8	13
Materials- Synthetic	16	32
Measurement methods	1	2
National Park	8	10
Operational scale	35	52
Optimism	3	4
Policy	4	4
Rattan ban	5	5
Product - cacao	3	7
Product- Gold	2	2
Quote	8	14
Recommendation	4	5
Scarcity	3	5
Strategy	13	18
Supplier	10	12
Supply issues	7	7
Transporation	3	5
Trust	6	7
Value		
Value-Furniture	5	6
Value-Rattan	6	12
Verification	6	8

Appendix K: OECD Consumer Price Index

all items non-food, non-energy
per cent change over previous year
http://stats.oecd.org/Index.aspx?querytype=view&queryname=221#

	% Change	2013 Value
1980	13.98	5.6313
1981	11.63	4.9764
1982	10.8	4.4389
1983	10.49	3.9733
1984	8.66	3.6292
1985	7.9	3.3425
1986	8.1	3.0717
1987	9.2	2.7891
1988	9.9	2.5130
1989	6.34	2.3537
1990	6.85	2.1925
1991	6.79	2.0436
1992	5.89	1.9232
1993	5.12	1.8248
1994	4.91	1.7352
1995	5.96	1.6318
1996	5.35	1.5445
1997	4.77	1.4708
1998	4.56	1.4037
1999	3.75	1.3511
2000	3.43	1.3047
2001	3.32	1.2614
2002	3.01	1.2234
2003	2.02	1.1987
2004	1.84	1.1767
2005	1.88	1.1546
2006	1.96	1.1319
2007	2.1	1.1082
2008	2.21	1.0837
2009	1.69	1.0654
2010	1.29	1.0516
2011	1.65	1.0343
2012	1.78	1.0158
2013	1.56	1

Appendix L: Trade data analysis

Although UNcomtrade clusters bamboo and rattan furniture products together, BPS data shows that 99 to 100 per cent of Indonesian products in this category are rattan (BPS 2013). I separate rattan out for Indonesian analysis and use codes that contain mixed materials for international analysis with caution.

Internationally traded goods are coded using a set of standards known as the Harmonised System (HS), which classify goods, such as furniture, by construction material and type. I use three collections of products in this analysis. The first is rattan material, including plaits[98] of rattan (HS4601931) and rattan cane (HS140120). The second is rattan furniture, which comprises seats of bamboo or rattan (HS940151) and furniture of bamboo or rattan (HS940381). The third is rattan finished products, which includes furniture plus mats of rattan (HS460122) and baskets of rattan (HS4601939). HS codes are revised every few years and I have adjusted older codes to 2007/2012 codes.

Import and export values between A and country B are not equal. Differences are due to differences in valuation procedures, timing, definitions of classifications of goods and fraudulent reporting (Departemen Kehutanan 2000; Muryawan 2012). The biggest cause of trade discrepancies in value is that exports are reported as free on board (FOB) and imports are reported as cost, insurance and freight (CIF) (Muryawan 2012). Import data is generally more reliable than export data (Bacchetta et al. 2013).

I use weight to compare unfinished products and 2013 USD to compare finished products. Weight gives a better idea of how much material is being extracted from the forest for the raw material and avoids measurement discrepancies that arise from comparing FOB to CIF values. Weight is not an effective measurement of furniture,

98. Peel and core used in weaving, a common feature of rattan furniture.

since high-quality furniture usually weighs less in a container than low quality furniture, which is stackable. USD are adjusted to 2013 USD using the OECD Consumer Price Index (see Appendix K) and are signified by "$".

Appendix M: Harmonised System Codes

Estimates of global values and volumes of rattan trade vary significantly. One reason for this is that the United Nations Commodity Trade Statistics Database (UNcomtrade), which reports on national imports and exports, classifies rattan furniture products with bamboo furniture in the same codes. Here are the HS1996 and HS2007 classifications of rattan commodities.

Raw rattan materials have their own classification and are therefore more clear than furniture. Raw materials are divided into categories of cane and plaits (thin strips of rattan peel or heart cut from cane). HS codes generally become more specific over time. Therefore, data for an HS 2007 code is only available from 2007 onward and is not backward compatible unless looking at a whole category, such as plaits of all materials. I select the most specific code available to use as a starting point for historical data.

HS1996 Code	HS2007 Code	Description
140120	140120	Vegetable materials of a kind used primarily for plaiting (for example, bamboos, rattans, reeds, rushes, osier, raffia, cleaned, bleached or dyed cereal straw, and lime bark) -- rattans
	460122	Mats, matting&screens of vegetable materials, of rattan
	460193	Plaits and similar products of plaiting materials, whether/not assembled into strips; plaiting materials, plaits&similar products of plaiting materials, bound together in parallel strands/woven, in sheet form, whether or not being finished articles, of rattan
	460212	Basketwork, wickerwork & other articles, made directly to shape from rattan
	940151	Seats of bamboo/rattan
	940381	Furniture of bamboo/rattan

Source: United Nations Commodity Trade Statistics Database

Appendix N: Structural and relational mechanisms of access by actor type

	Market	Knowledge	Capital	Social Identity	Technology	Labour Relations	Social Relations	Authority
Collectors (Local)	Direct to buyer or to foreman; relations are long standing and unlikely to change. Relationship strengthened by indebtedness.	Learned from father or older relative about rattan and forest survival	Motorbikes (see technology); capital is a disincentive to a participation, but does not affect the ability to benefit from rattan.	Sense of ownership of forest, including conservation area; rattan as cultural history; only men may participate.	Motorbike and mobile phone to facilitate market linkage	Close ties and trust with other collectors; must be physically fit enough to be able to collect rattan	Often collect with close friends and family	Counter-authority concerning collection from conservation areas; loose administrative authority from Ministry of Forestry (vetted by buyer). No issues with forest police anymore.
Collectors (Outsiders)	Same as above	Same as above	Same as above	Rattan as cultural history but now as outsiders as local rattan is gone	Same as above	Same as above	Same as above	Require permission from Utani Village Head. Are assigned areas of forest more prone to police inspection.
Bosses	Have long-standing relationships with processors. Relationship strengthened by indebtedness.	Inherited business from father. No special knowledge required other than very general species identification.	Some have their own trucks.	Mostly immigrants to area. No inherent perceived rights.	Mobile phones, scales and trucks are essential.	Operate on system of holding loans over collectors, consider collectors “staff” and are territorial over staff working with other buyers.	Loyalty to Processor and positioned as “helping” Collectors, but no family ties to either.	Frequent clashed with local authorities over permits. Bribes paid in transportation, even when permits are in place.

	Market	Knowledge	Capital	Social Identity	Technology	Labour Relations	Social Relations	Authority
Processors	Deep relationships with Inter-island brokers. Highly protective over relationships. Often exclusive. Relationship strengthened by indebtedness.	Inherited business from father.General business knowledge. Most have university degrees in business. Specialised grading knowledge.	Land required for drying, factories for processing, including special equipment for curing, sanding and polishing. Some have trucks for transportation.	One of six is from Palu, the others are all from Makassar, mostly of Chinese ancestry, about half also speak Mandarin or Cantonese.	Technologies for processing is protected from competition, especially concerning drying and curing process. Blackberries are communication tool of choice.	Require labour force. Usually 10 to 40 employees (women and men) who love near the factory- often related.	Employees are usually related to one another or live in the same area. Jobs are filled through word-of-mouth. Owners have connections to China and brokers.	Shipments are subject to inspection; resulting in small bribes in the form of food, or cash for expedited service. No factory inspections for health or working conditions.
Inter-Island Brokers / Wholesalers	Close ties with processors. Open relationships with factories.	Specialised product knowledge on species, grading and pricing.	Warehouse required. Some have trucks that they can use to make deliveries as wholesalers.	Mostly from regions where rattan is sourced, but now living in Cirebon or Surabaya.	Minimal technology required other than basic inventory, which is usually computerised and mobile phones/ Blackberries for communication on sales.	Have a few staff, but not many required unless they also do processing, which some do.	Maintain client relations with clients and solid relationships, often exclusive with processors.	Same as processors.
Smugglers	Strong market ties with buyers in China, Malaysia and Singapore.	Special knowledge required for exporting rattan illegally.	Generally contract fishing boats or spaces on container ships. Logically, would have warehouse the same as brokers and wholesalers.	Unknown.	Unknown, but probably same as inter-island brokers	Unknown, but Indonesian labourers are contracted based on volume.	Unknown.	Regular conflict with authorities, but also much speculation that authorities benefit from illegal export through bribes.

	Market	Knowledge	Capital	Social Identity	Technology	Labour Relations	Social Relations	Authority
Manufacturers & exporters	Extensive market connections and awareness, often fostered through trade shows and network building. Wider networks (markets and designers) tend to be more successful.	Specialised knowledge on business, design, marketing, financial and human resource management. often high-functioning professionals with advanced degrees.	High capital investment in specialised machines and factory space.	Mostly from producing area. Often inherited business from parents. Most profitable and productive tend to be owned by international and national immigrants.	Specialised technologies for treating and transforming rattan.	Mix of direct staff and sub-contracted workers who work out of their homes. Depend on skilled and flexible labor force. Loyalty of labour less than in previous phases of production.	Primarily with market linkages. Key staff are developed and nurtured, but generally, social relations are with social semi-elite and buyers for the purpose of business transactions. Often have other businesses.	Business permits are usually in place, but if not, bribes can be paid. Inspections are required and involve bribes. Export licences required, which are costly to maintain and subject to inspection.
Retailers & importers	Market connections relying heavily on trust.	Special knowledge often of design and specific market requirements.	Limited capital requirements: can range from internet-based sales requiring a warehouse and web page to showroom.	Not particularly relevant to sales, but sometimes useful in building social relations.	Can use web-based sales. Otherwise, limited technologies required.	Unknown.	Strong trust-based relationships with manufacturers/ exporters.	Buyers work within the authorities of safety specifications and import requirements and pass those specifications on to upstream actors.